

1/16/

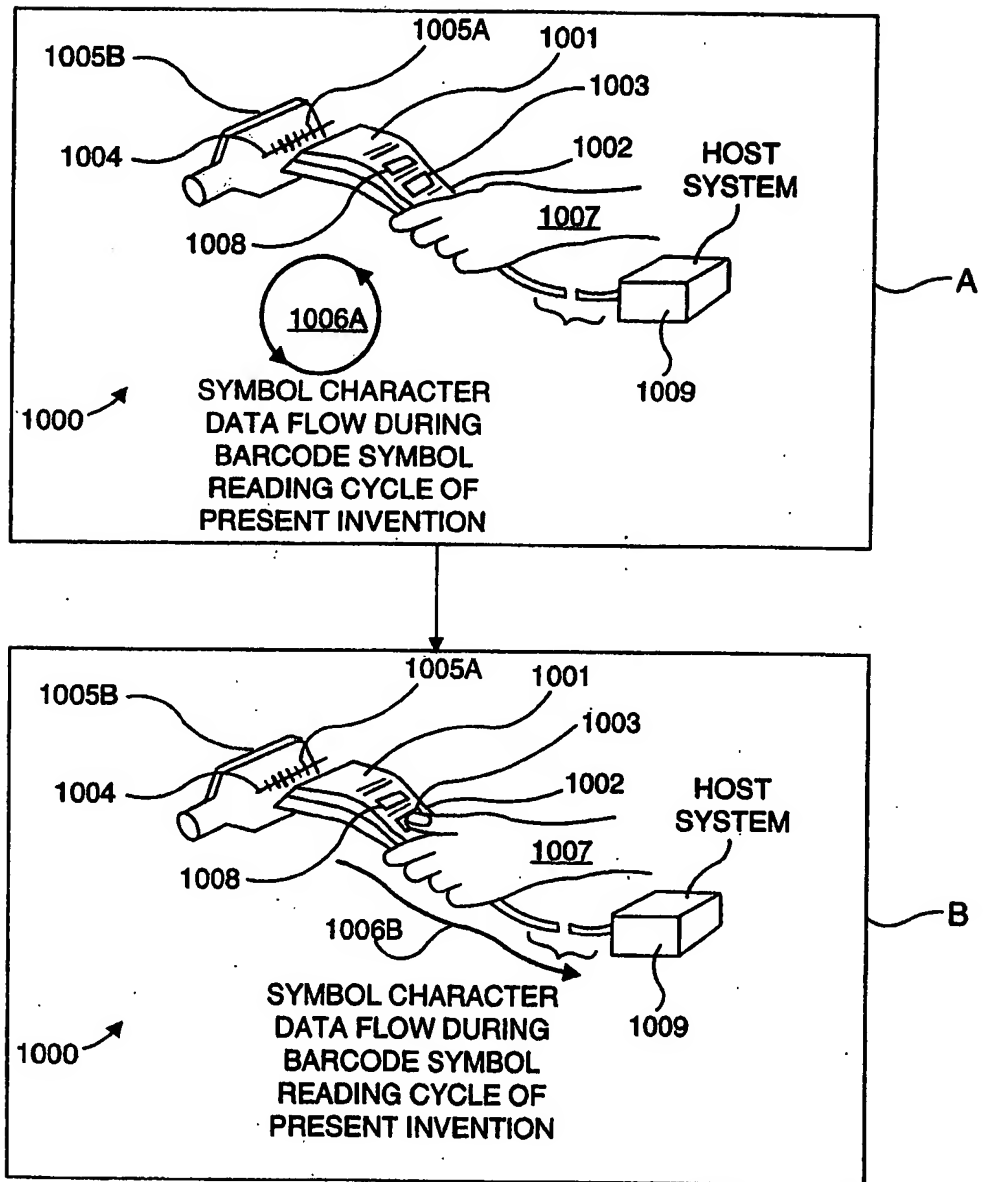


FIG. 1

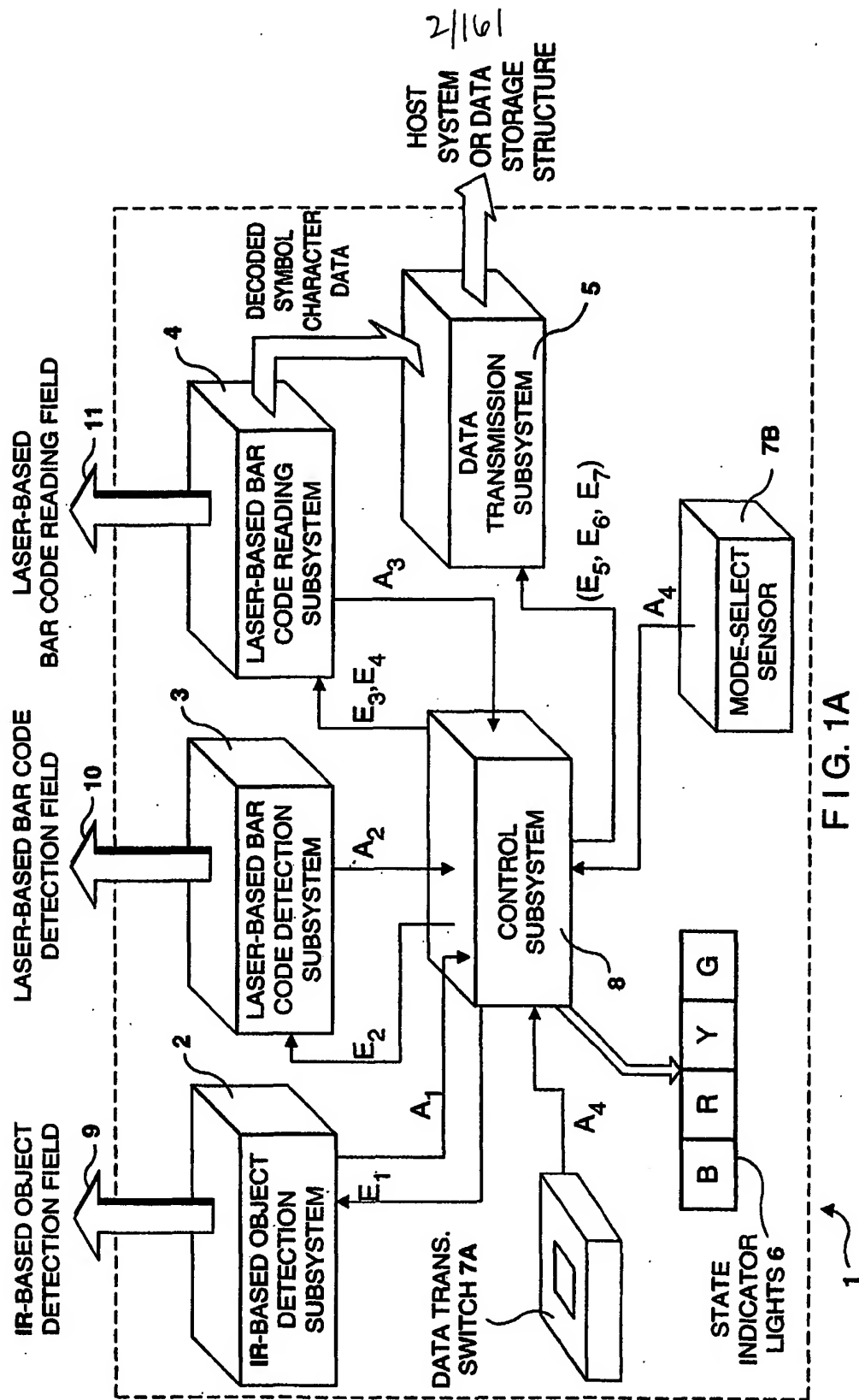


FIG. 1A

3/161

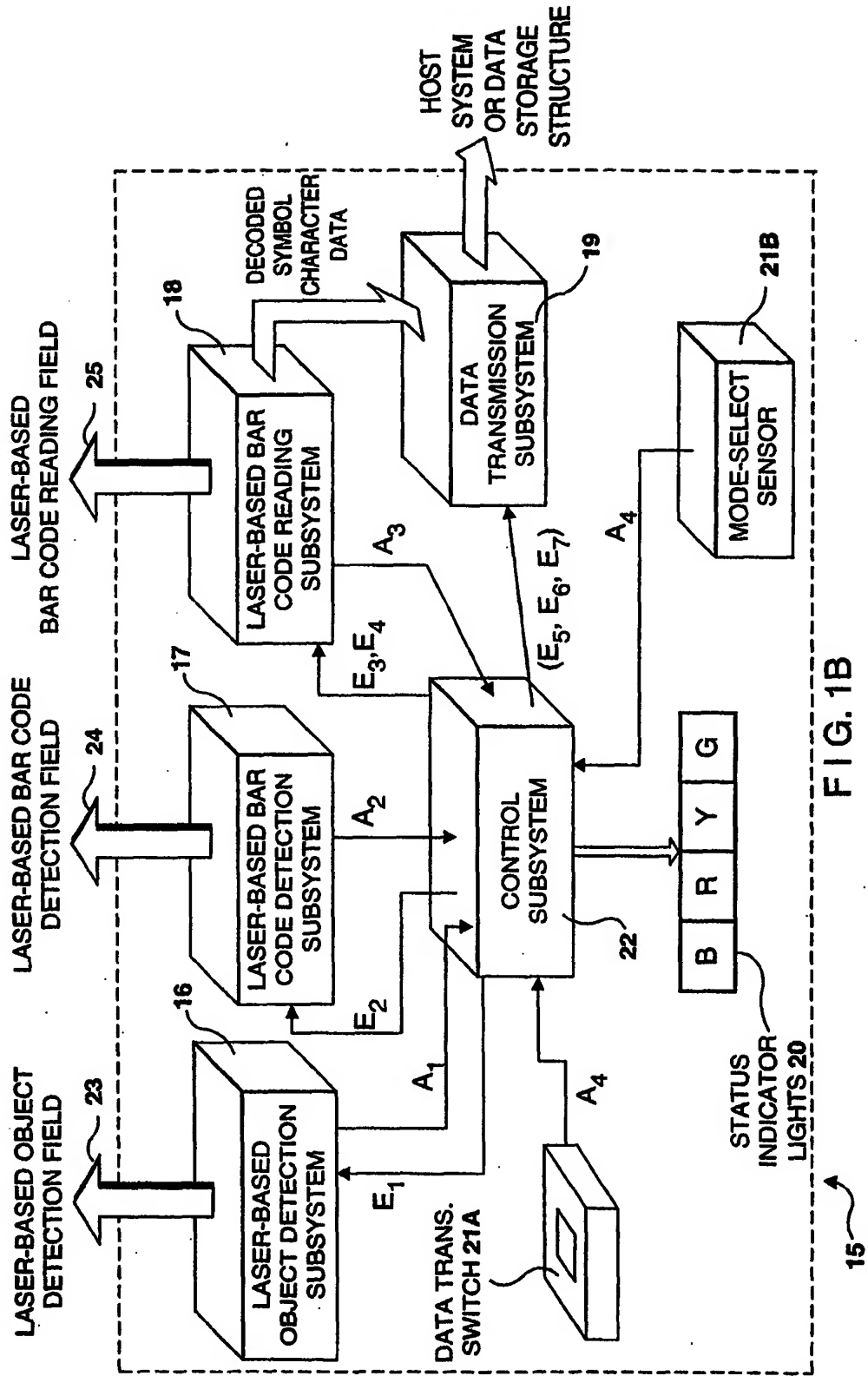


FIG. 1B

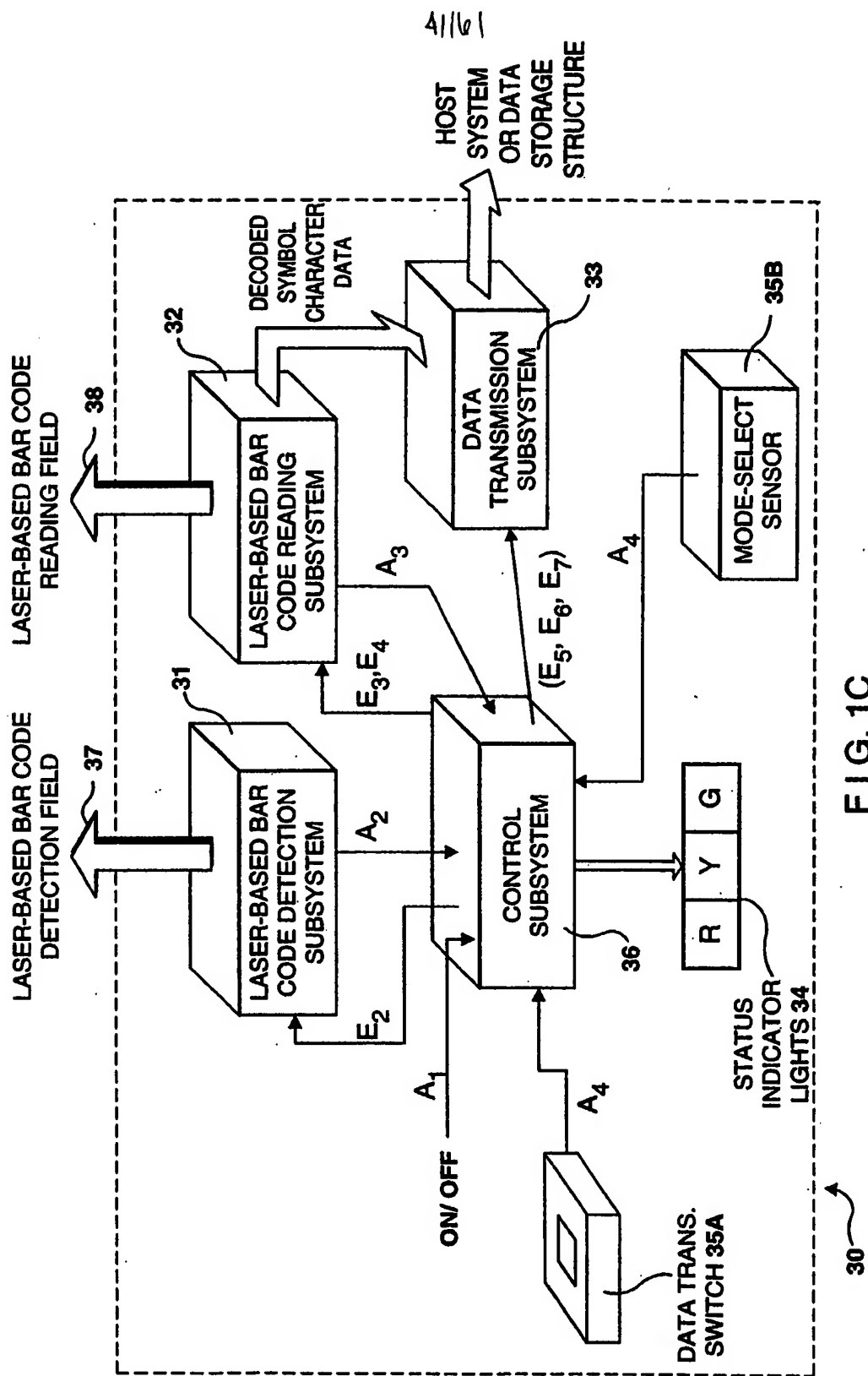


FIG. 1C

5/161

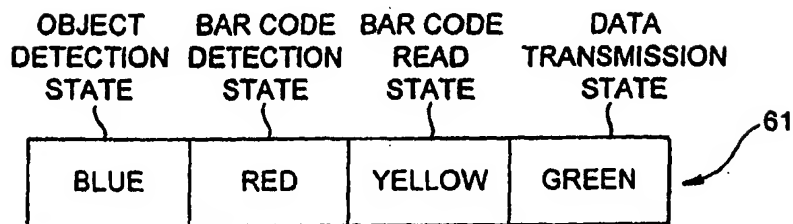
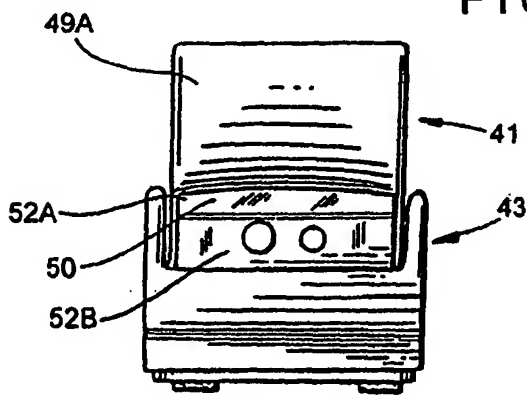
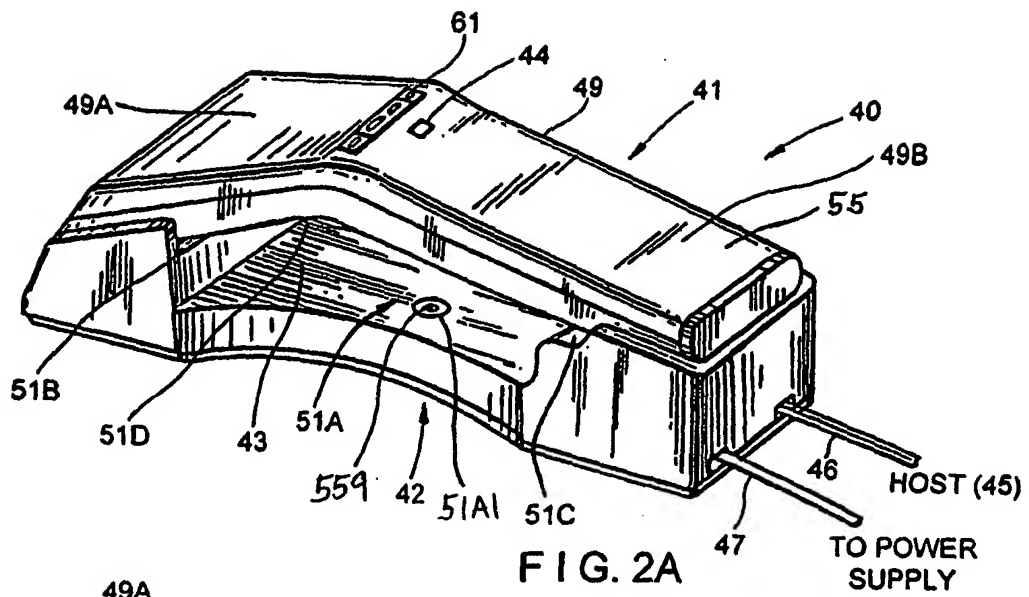


FIG. 2C

61161

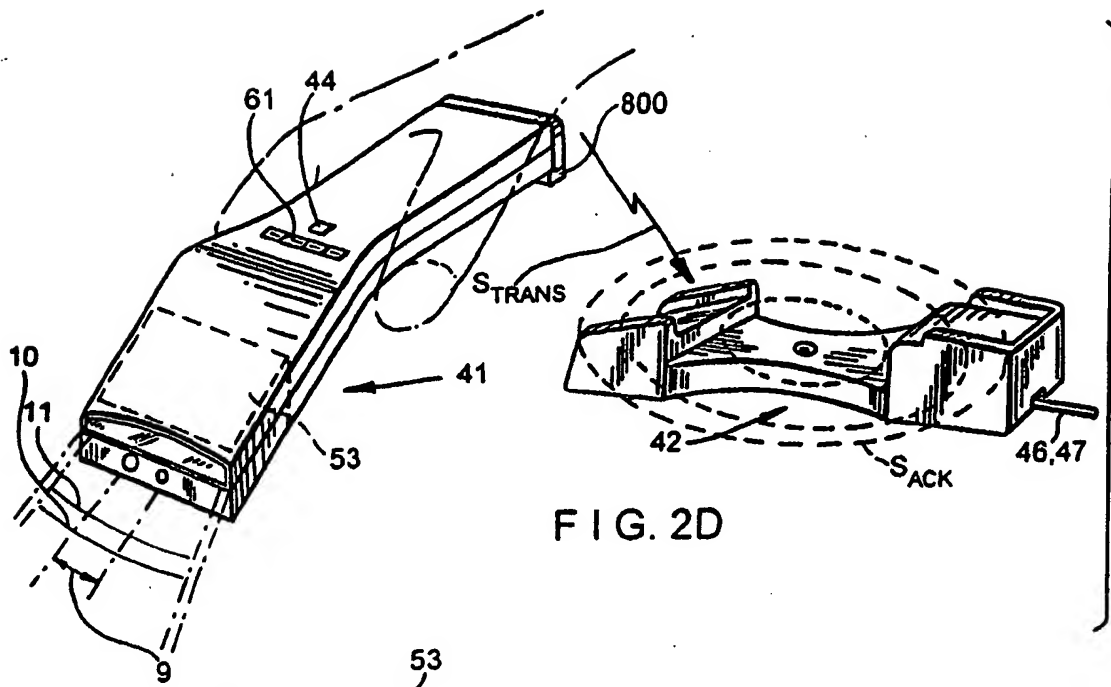


FIG. 2D

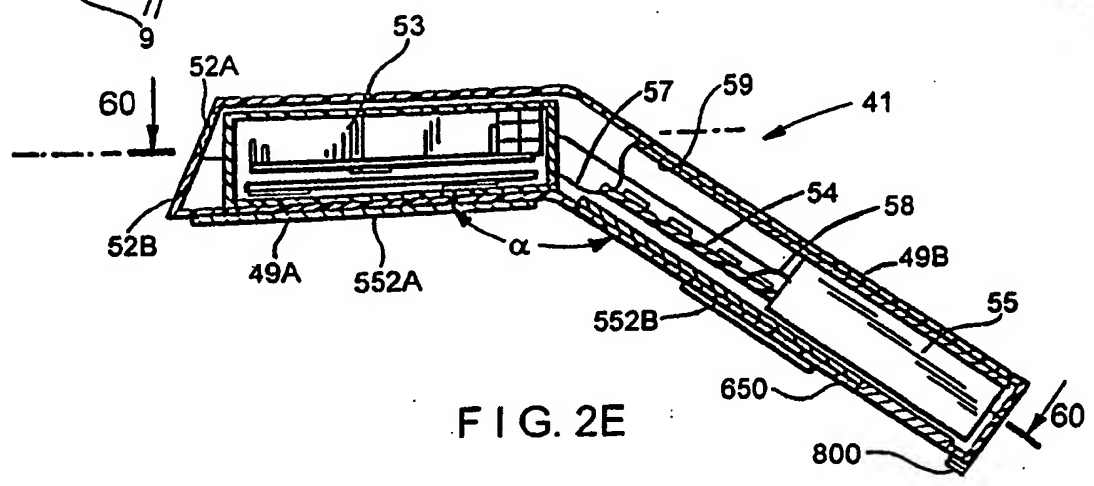


FIG. 2E

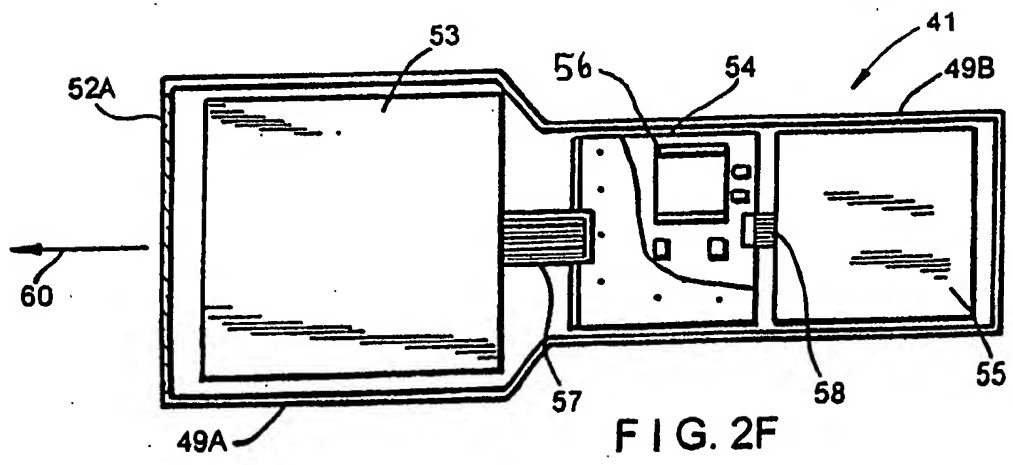


FIG. 2F

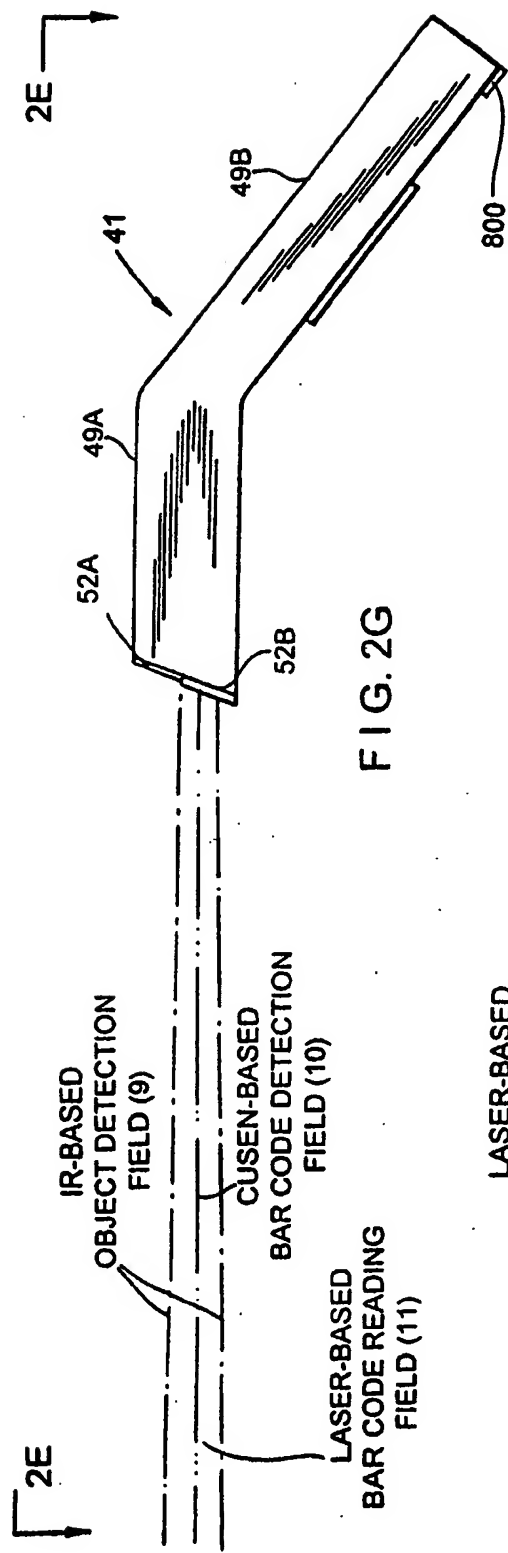


FIG. 2G

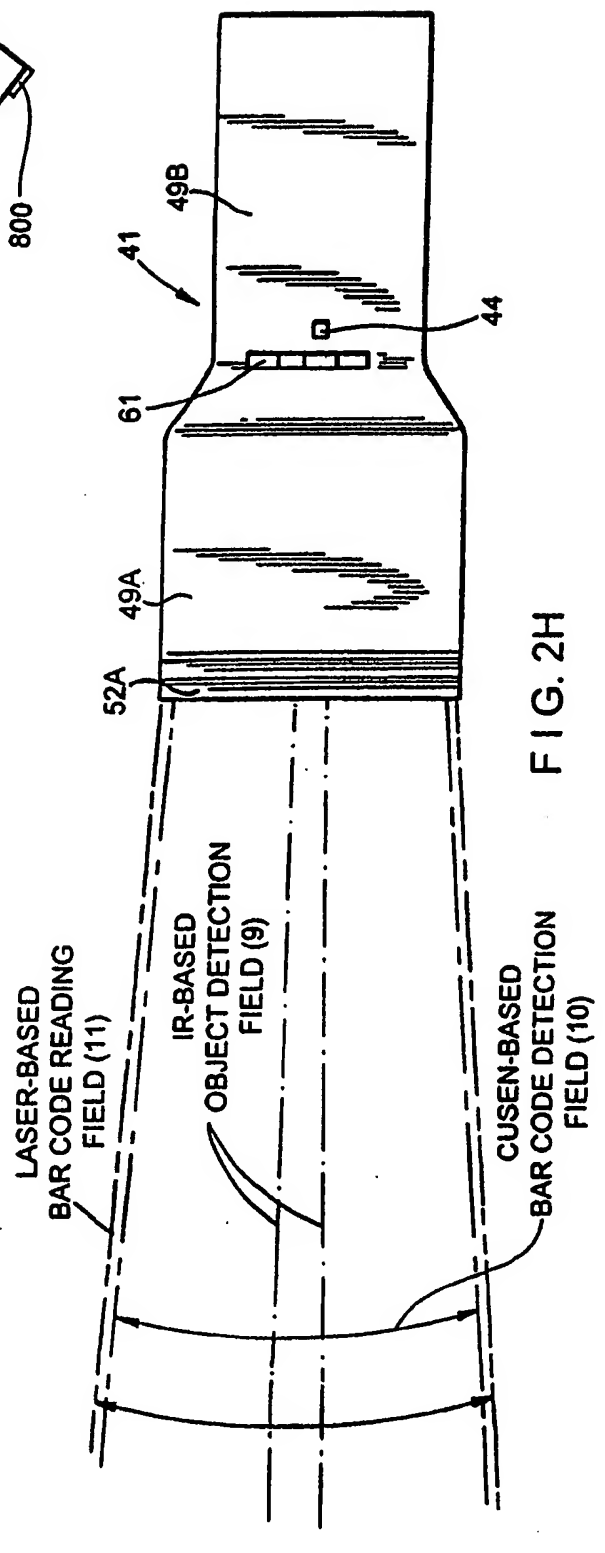
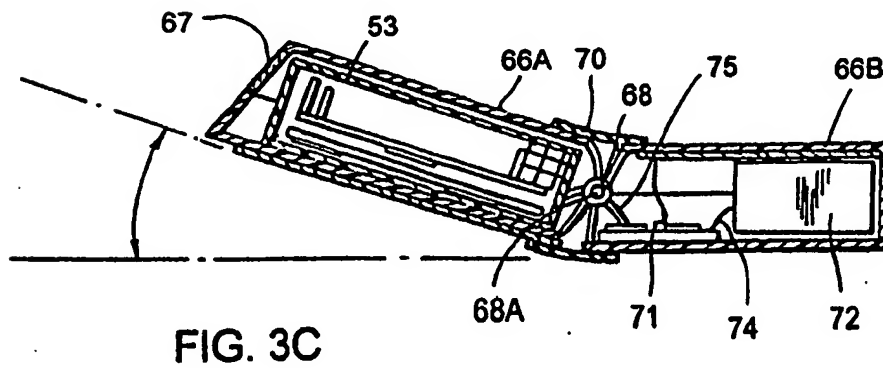
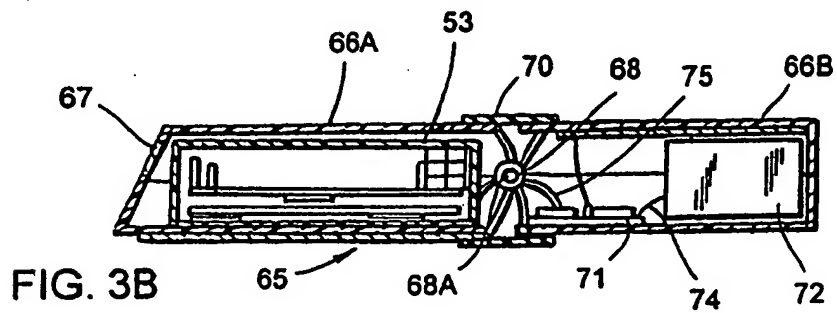
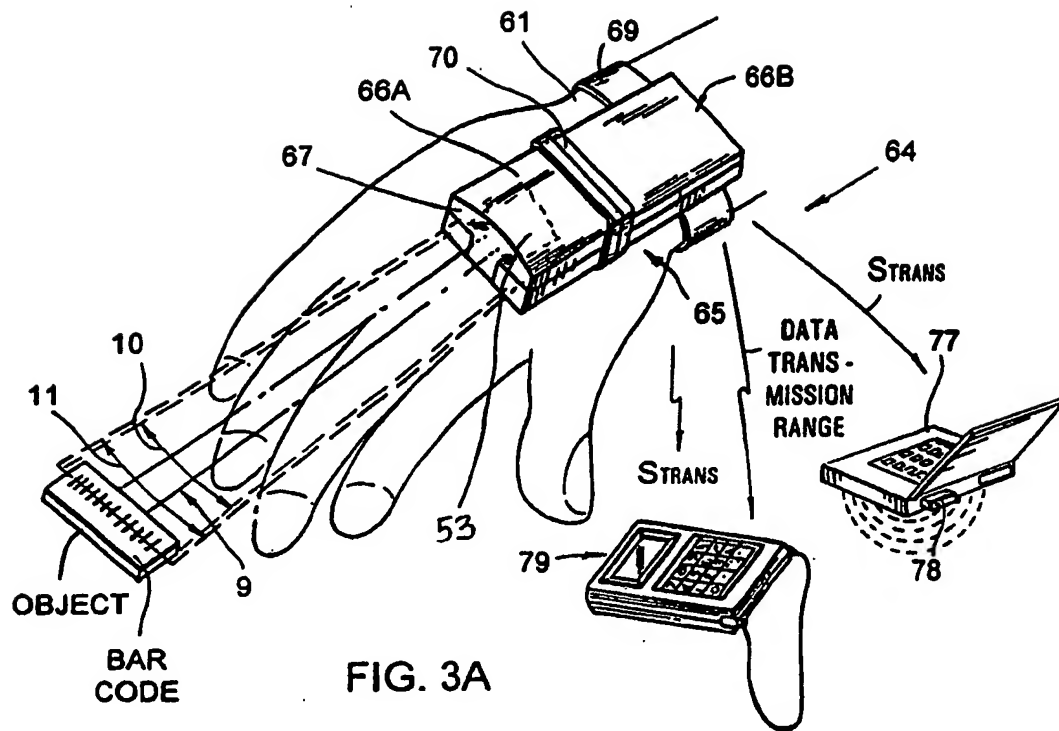


FIG. 2H

FIG. 2J

9/161



10/161

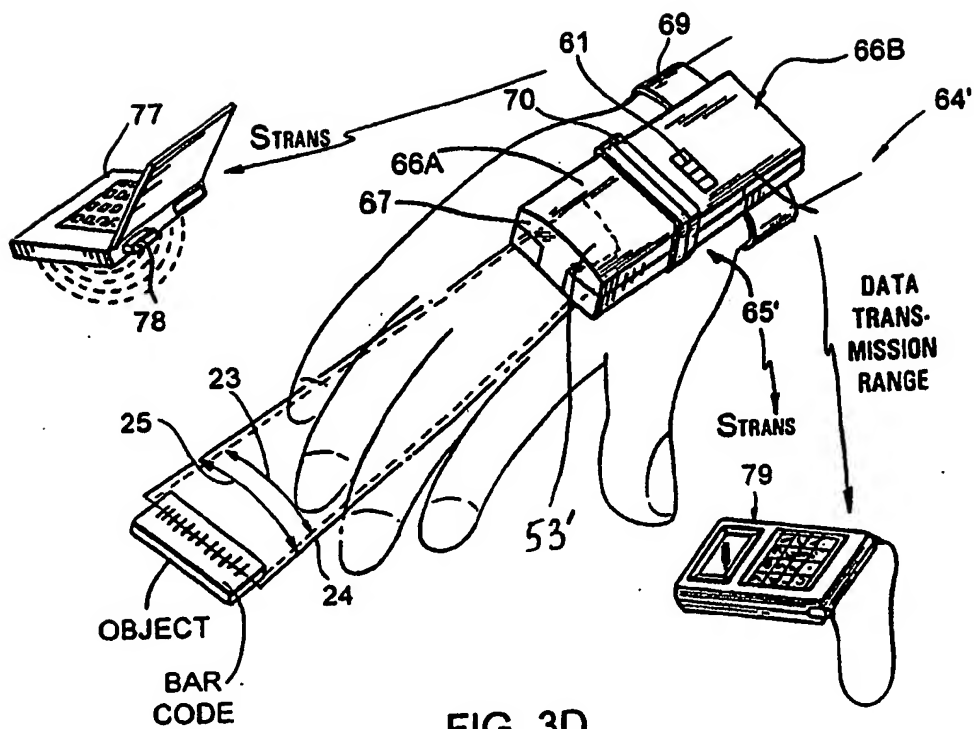


FIG. 3D

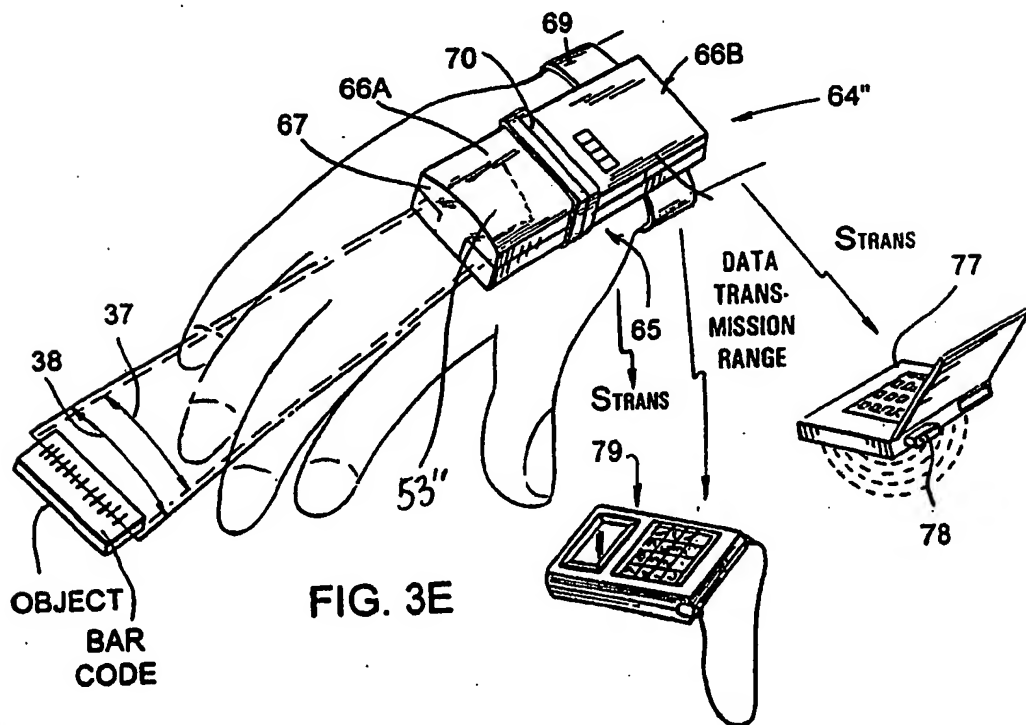
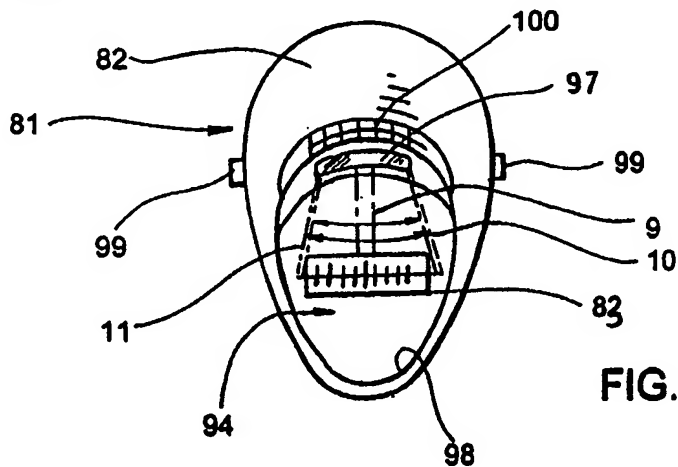
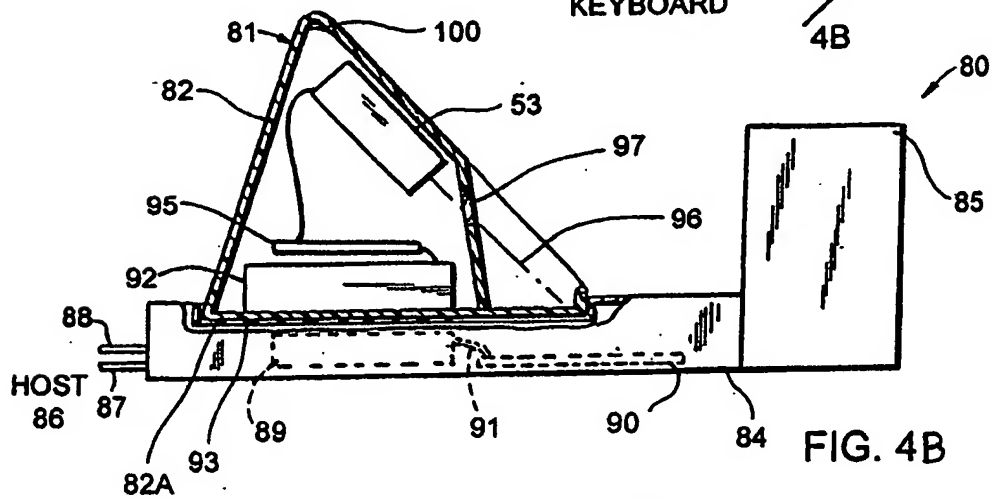
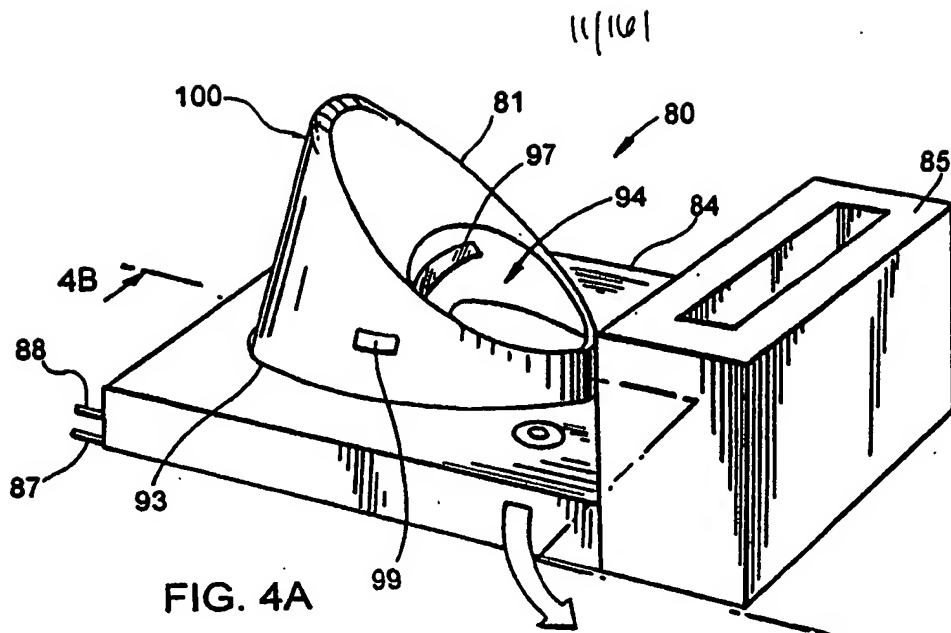
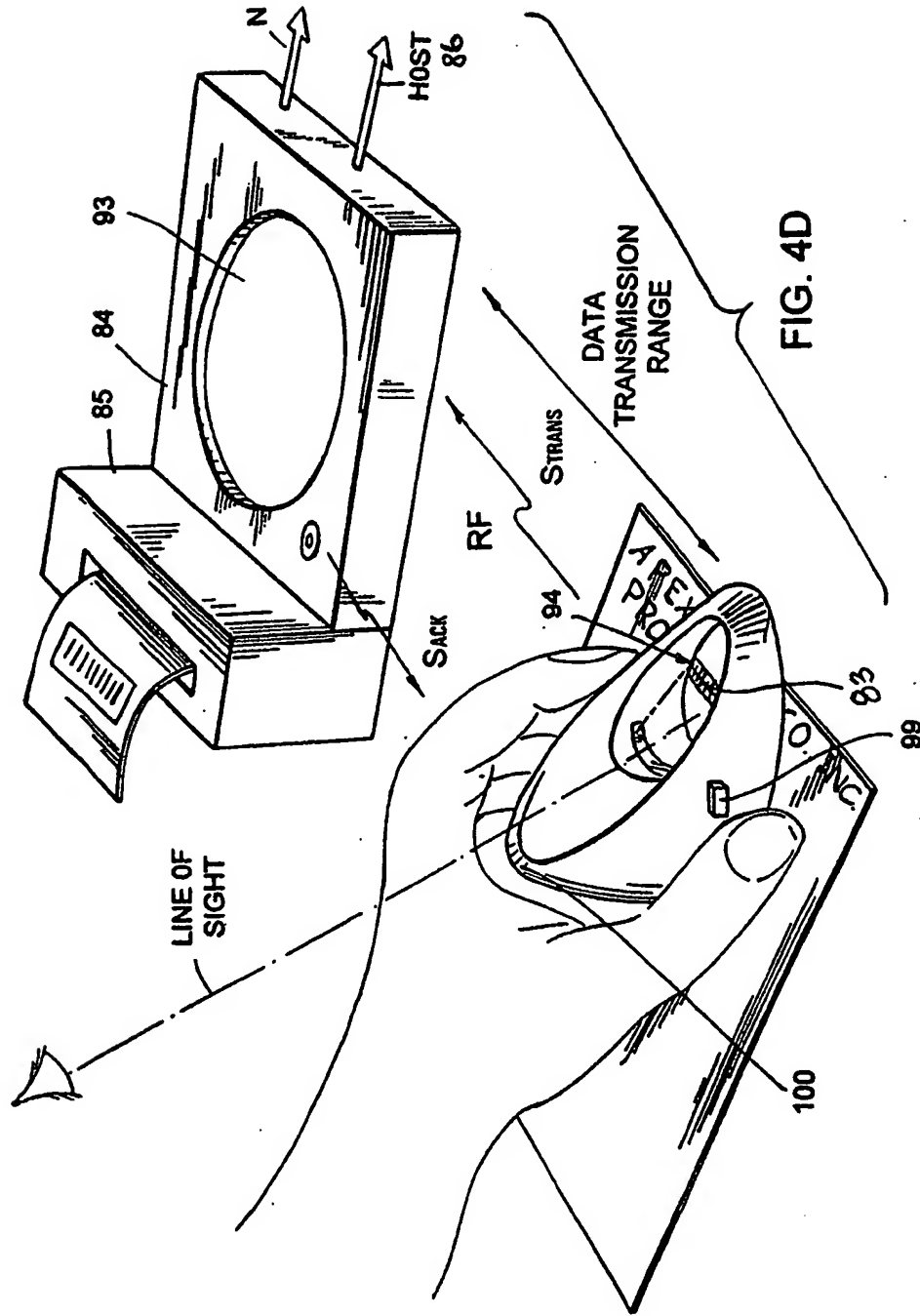


FIG. 3E



12/161



13/161

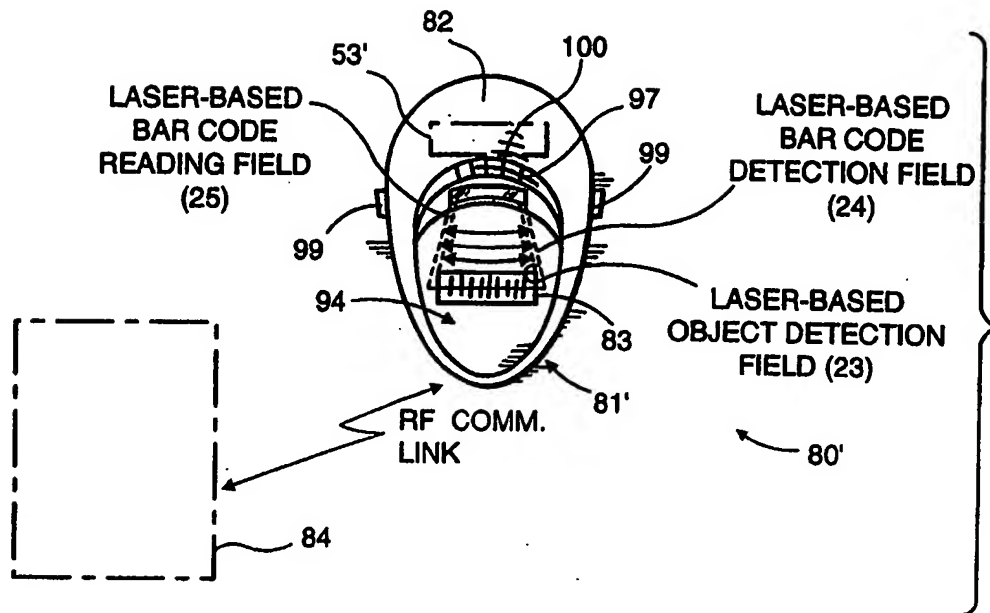


FIG. 4E

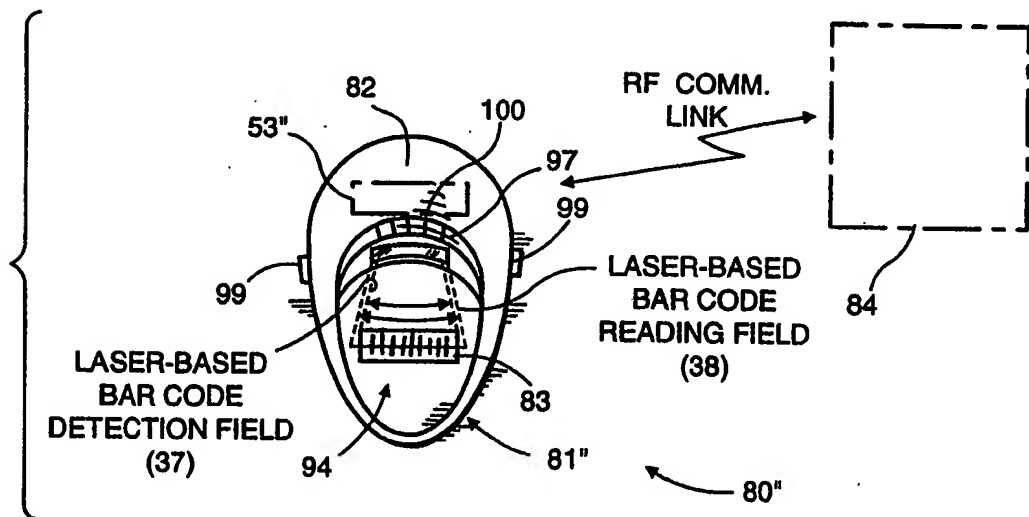


FIG. 4F

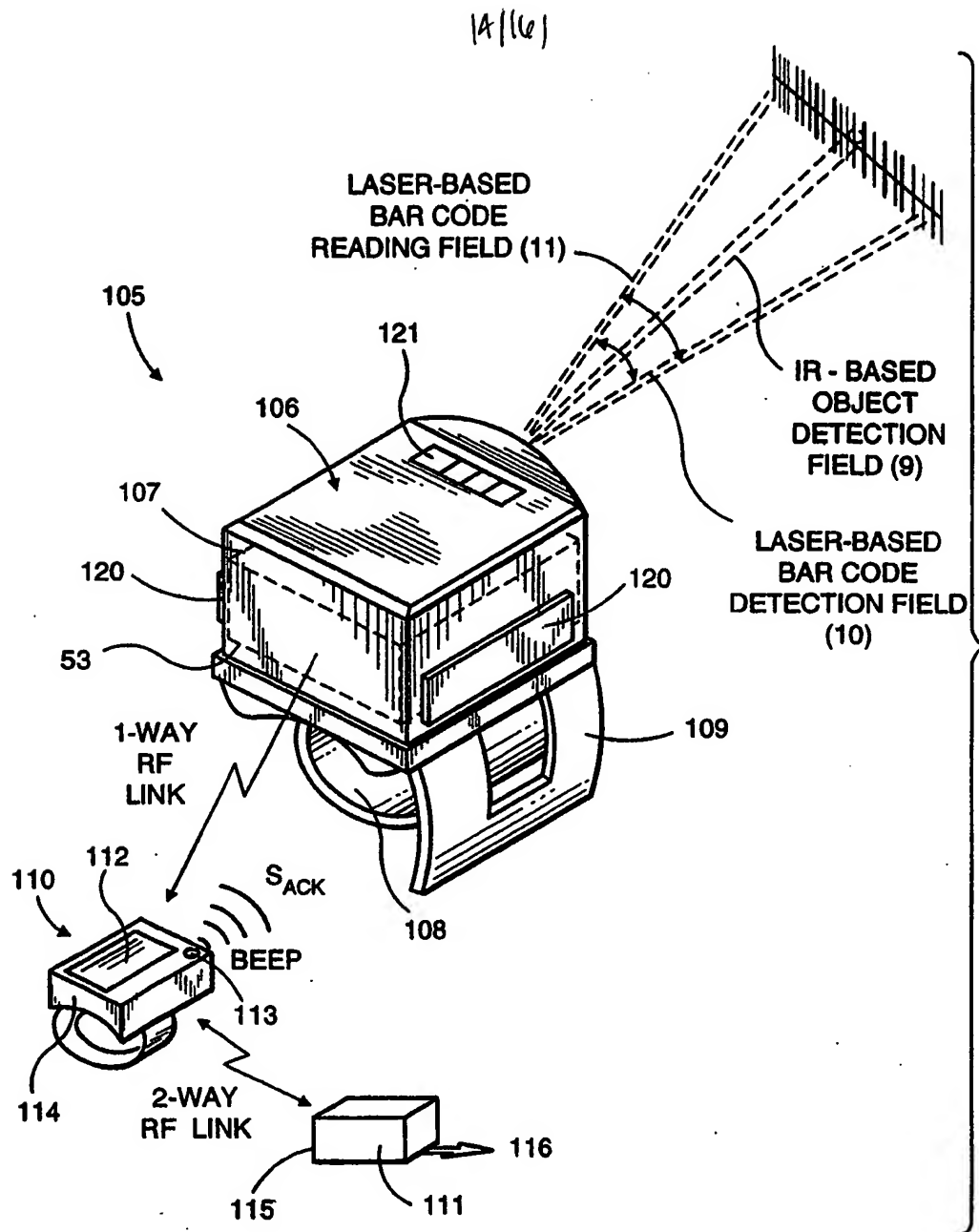


FIG. 5A

15/161

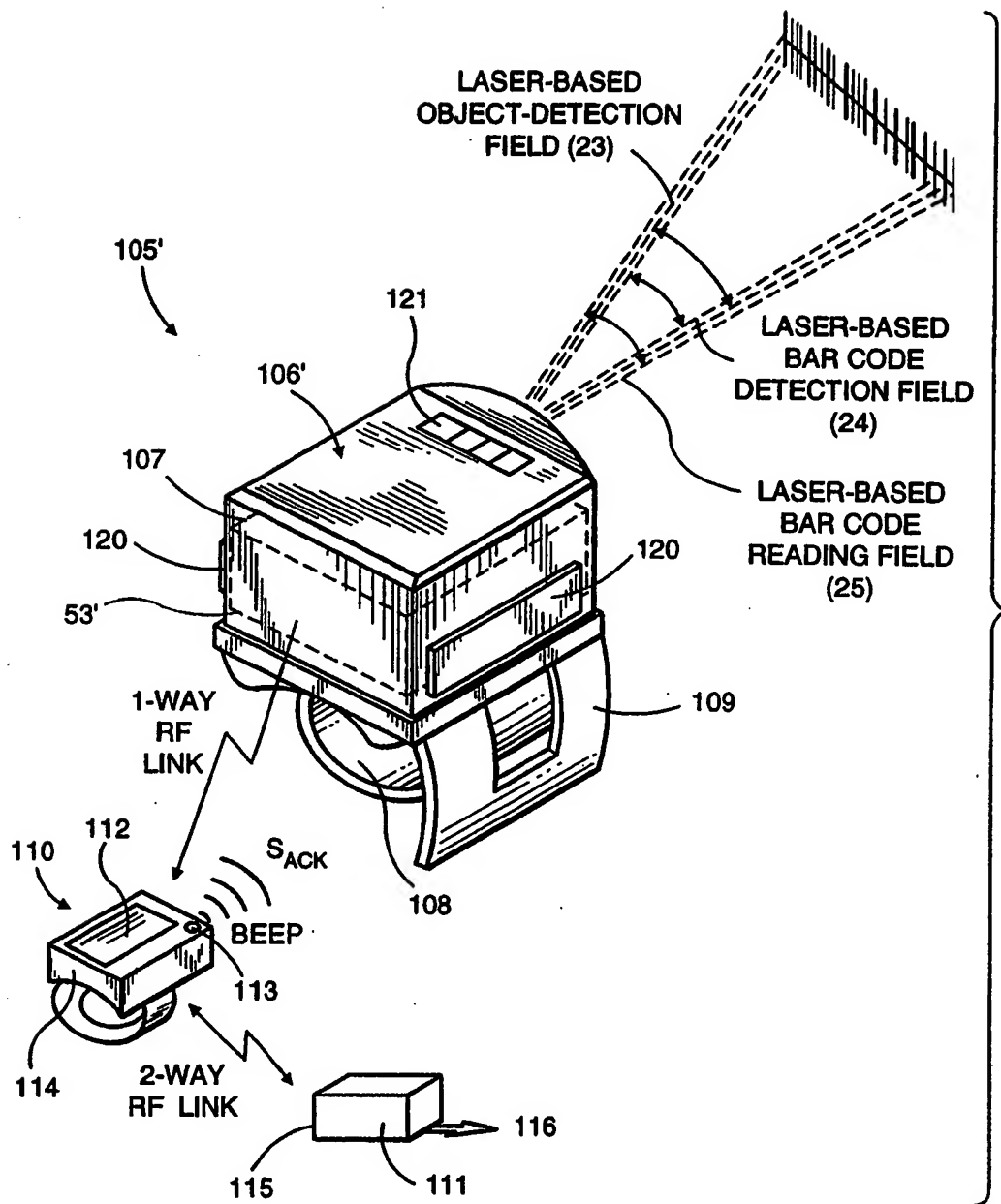


FIG. 5B

16/161

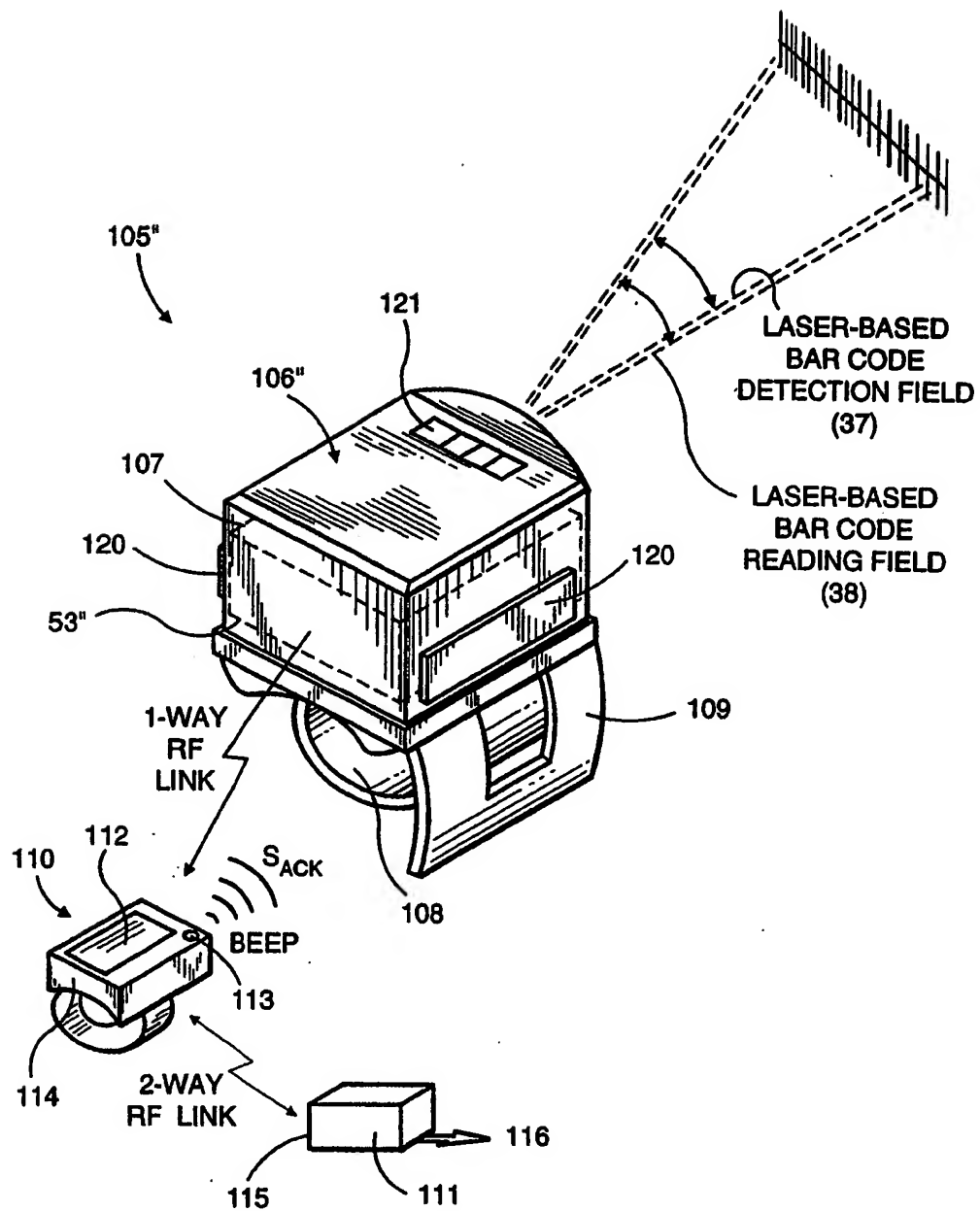


FIG. 5C

17/161

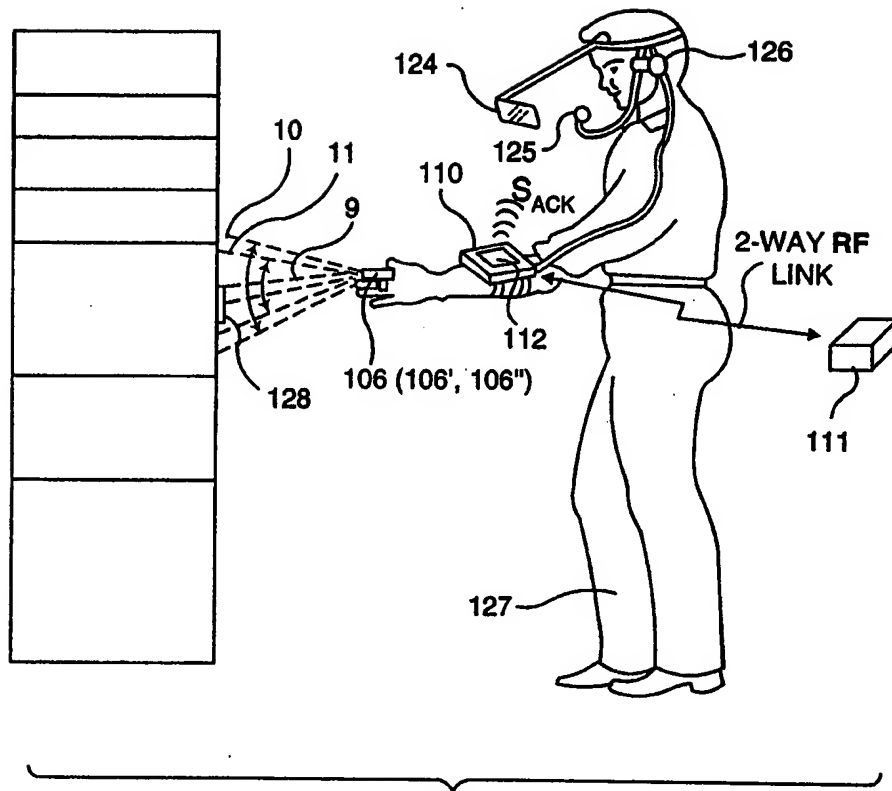


FIG. 5D

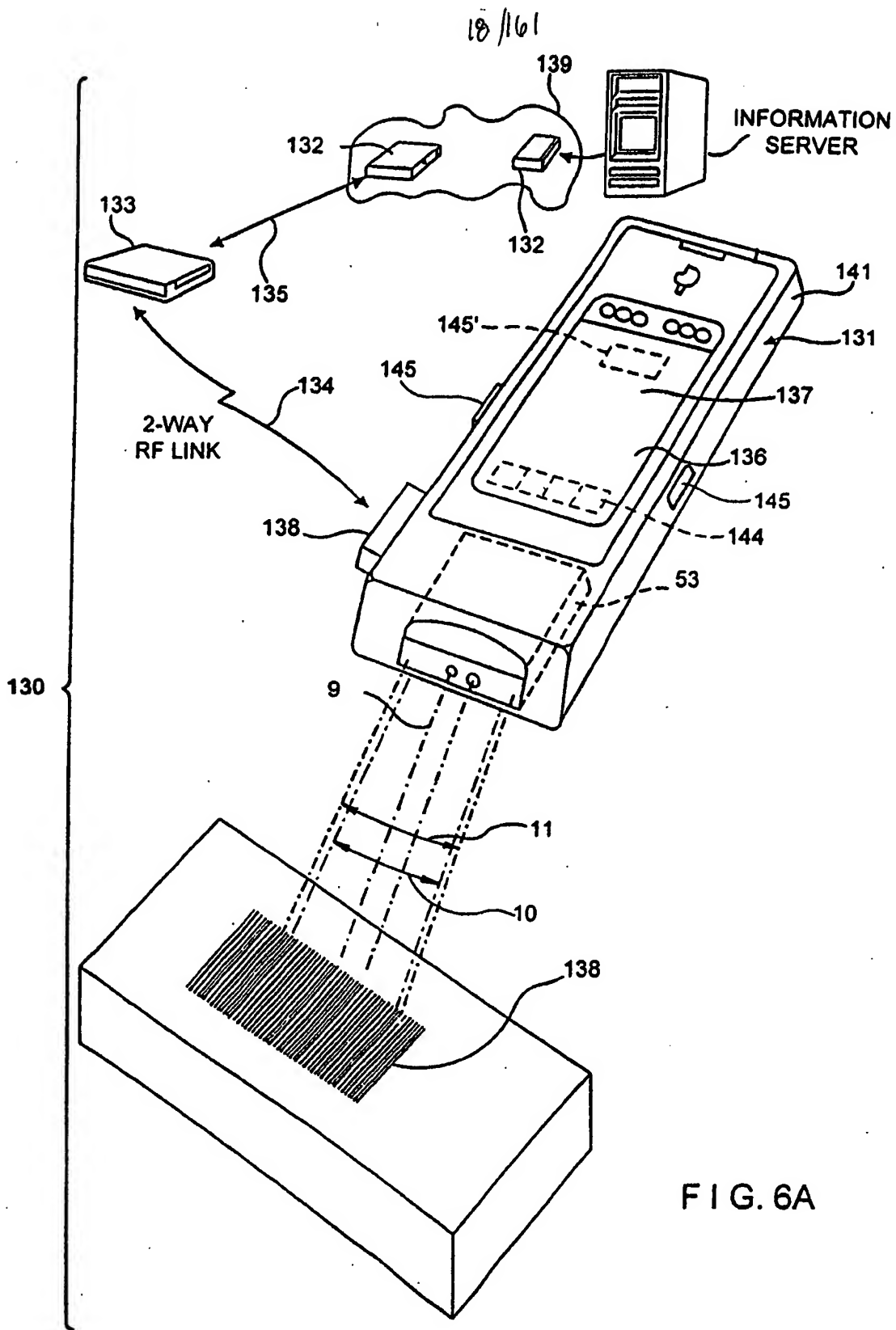
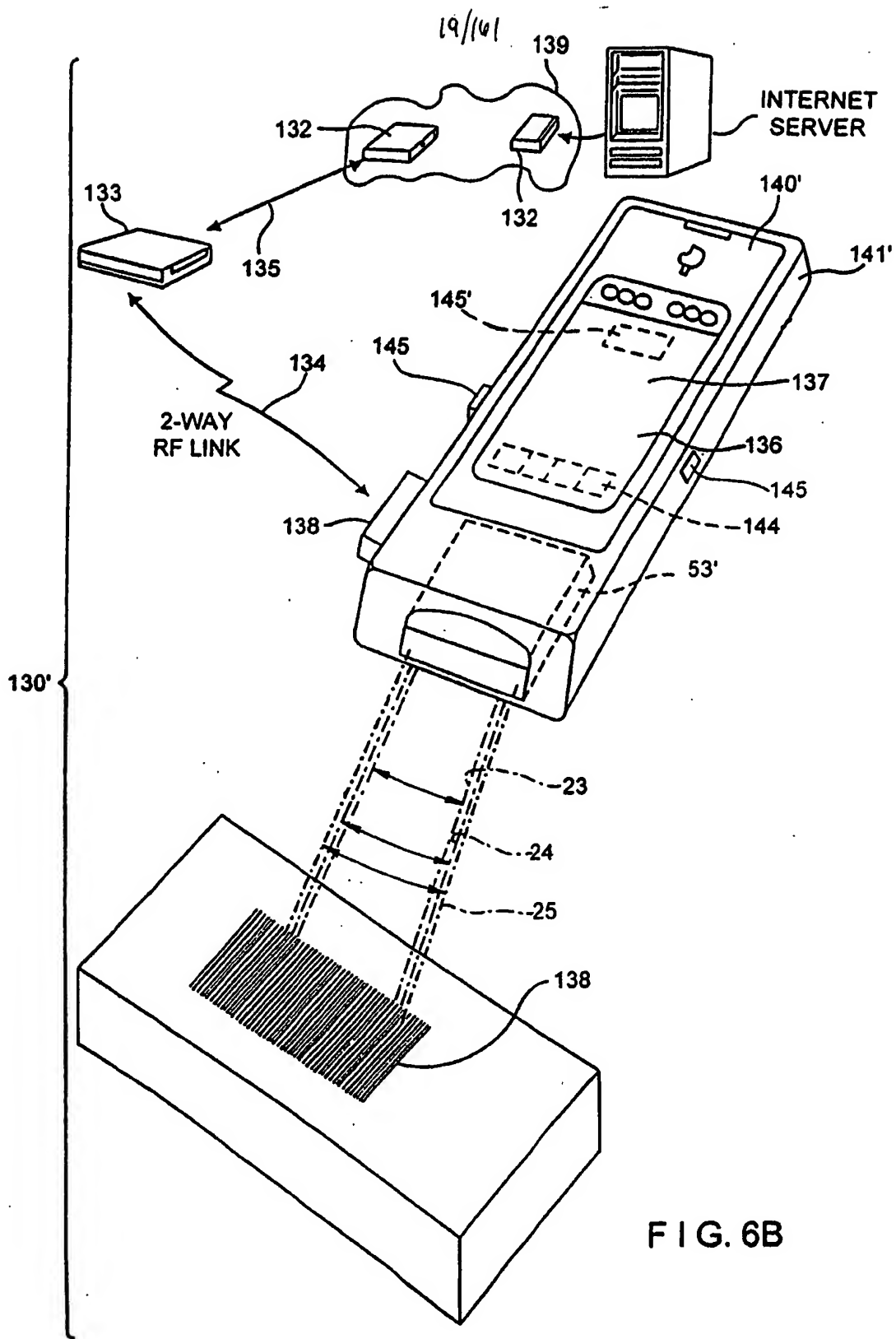


FIG. 6A



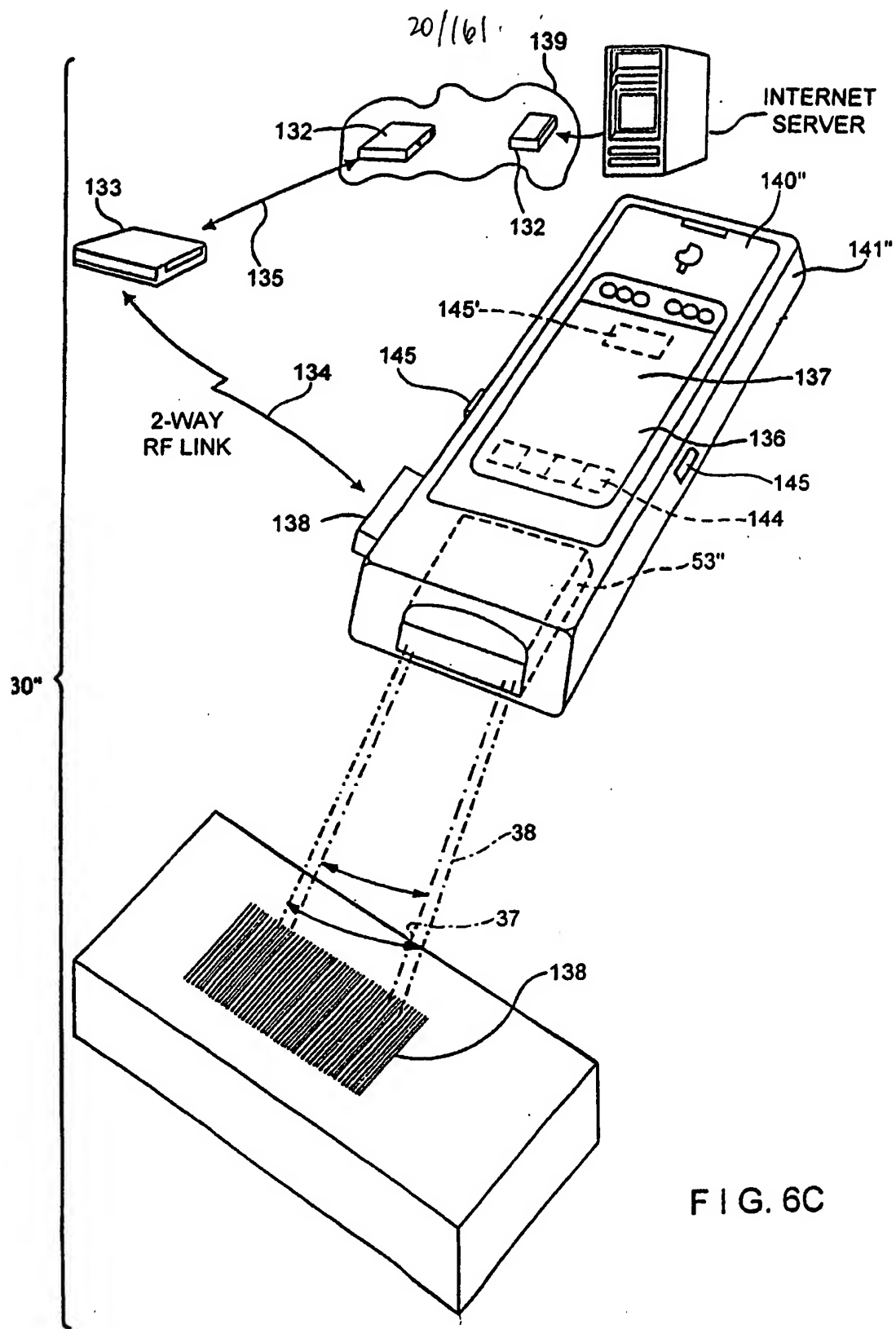


FIG. 6C

/

22/161

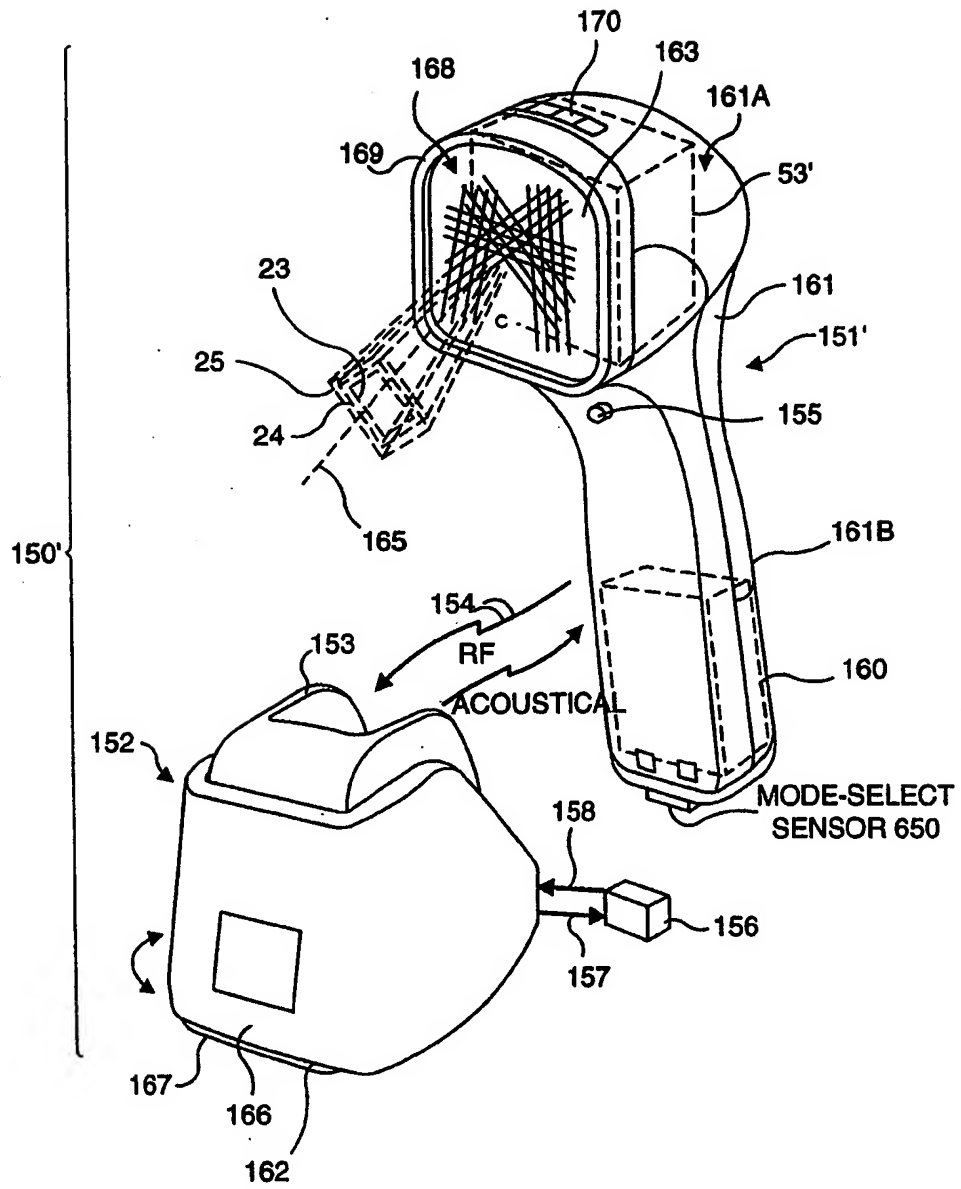


FIG. 7B

23/161

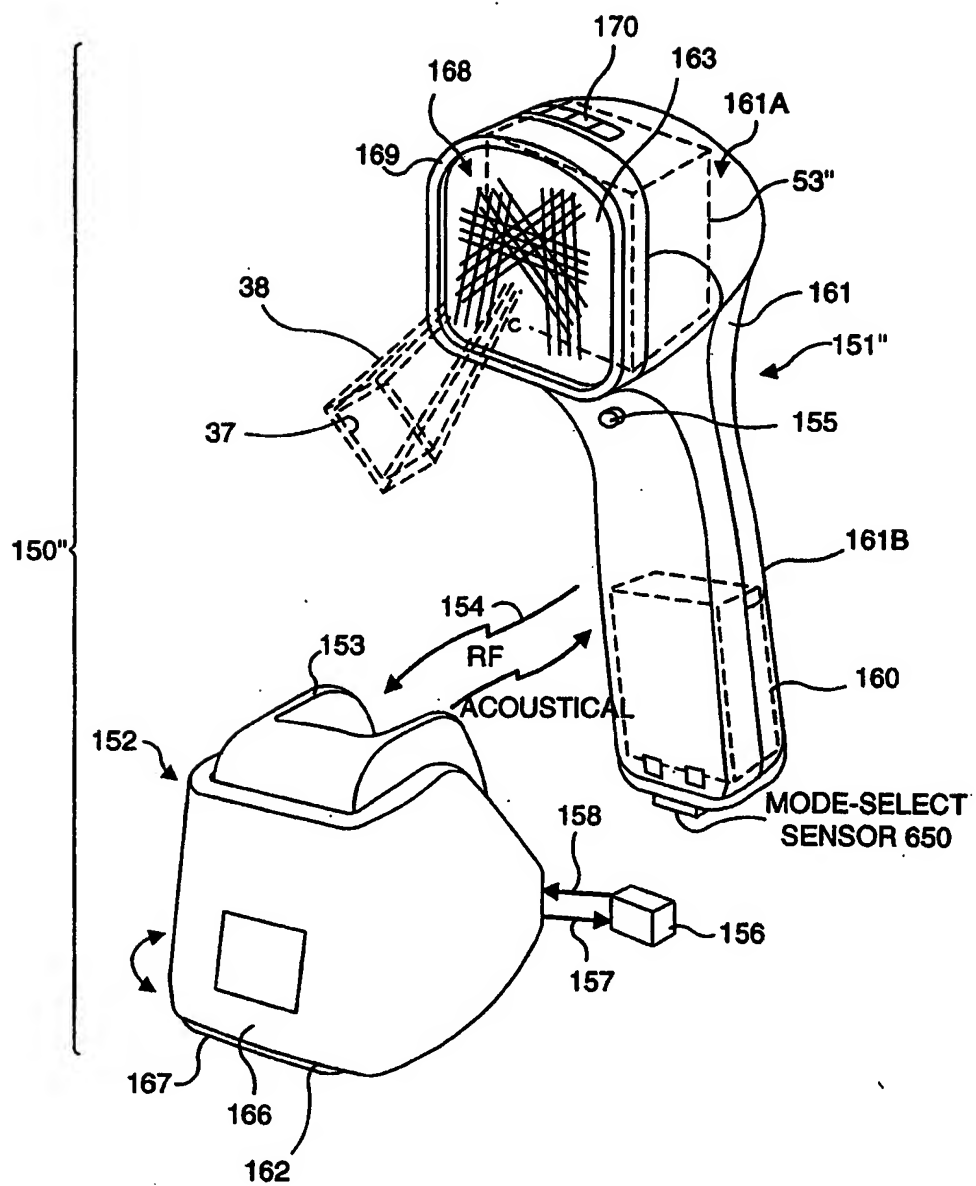


FIG. 7C

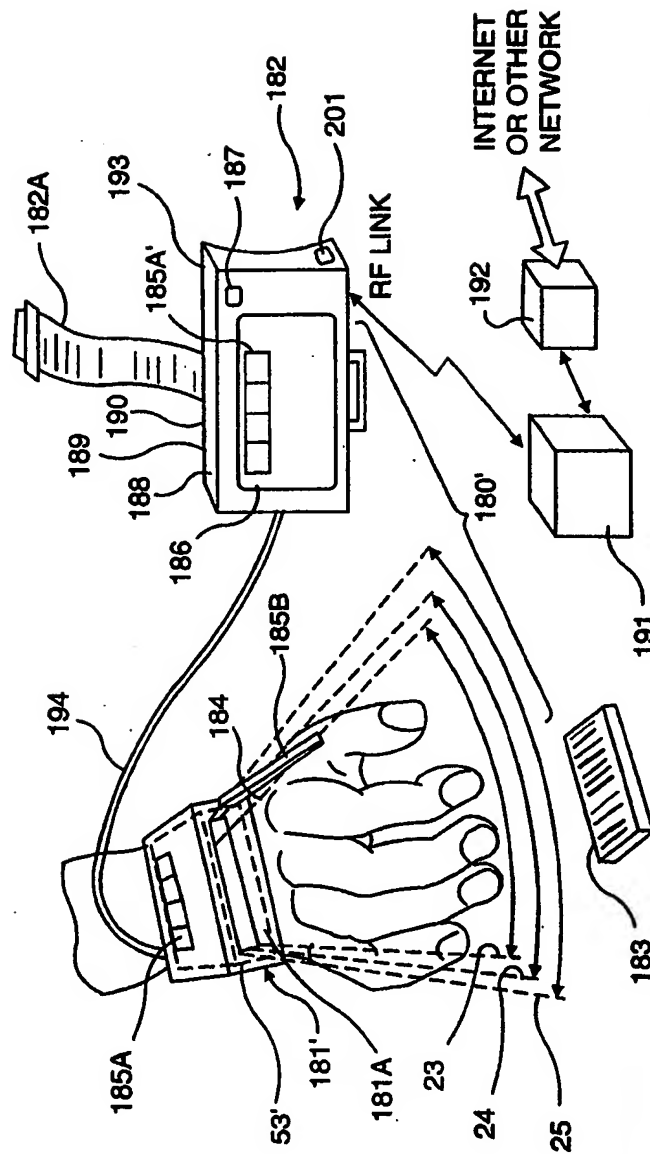


FIG. 8B

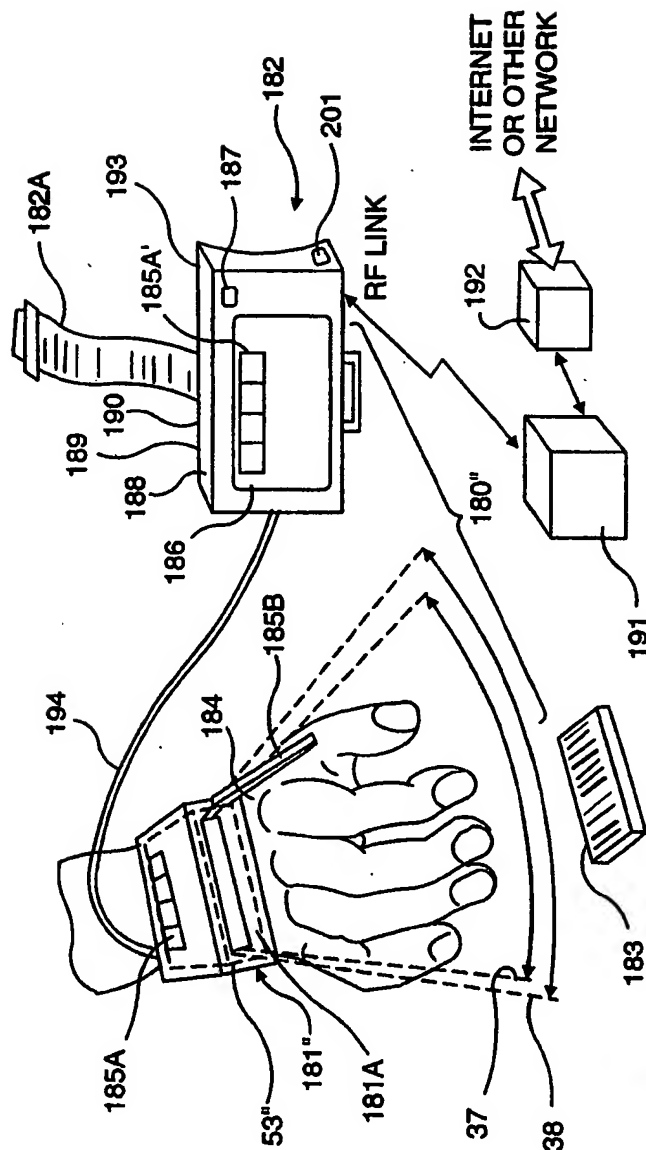


FIG. 8C

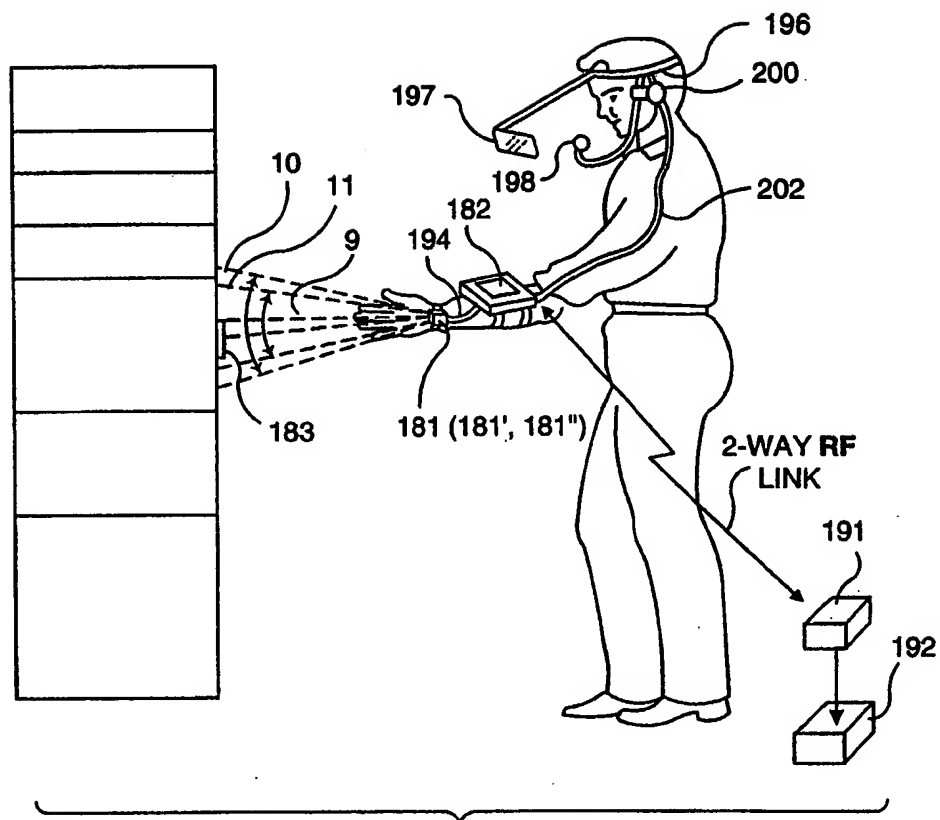
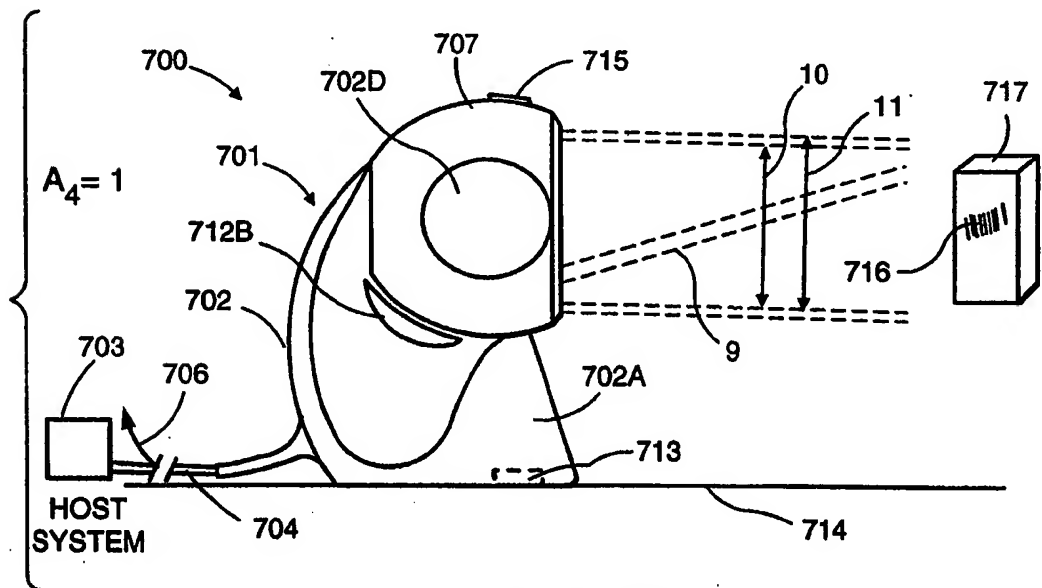
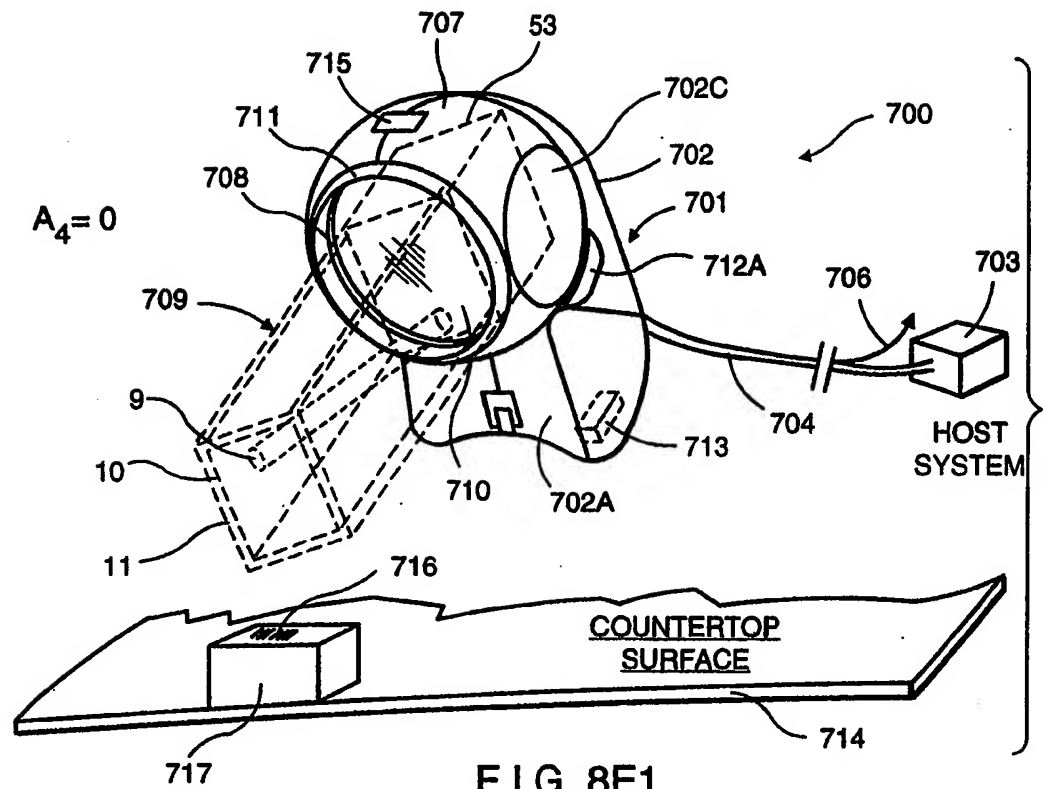


FIG. 8D

28/161



29/161

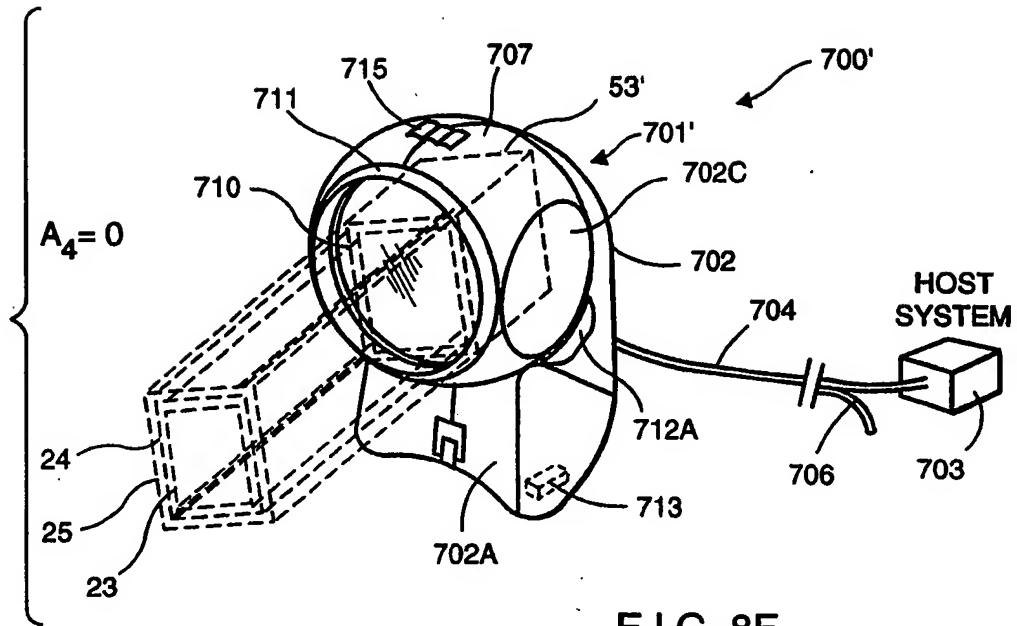


FIG. 8F

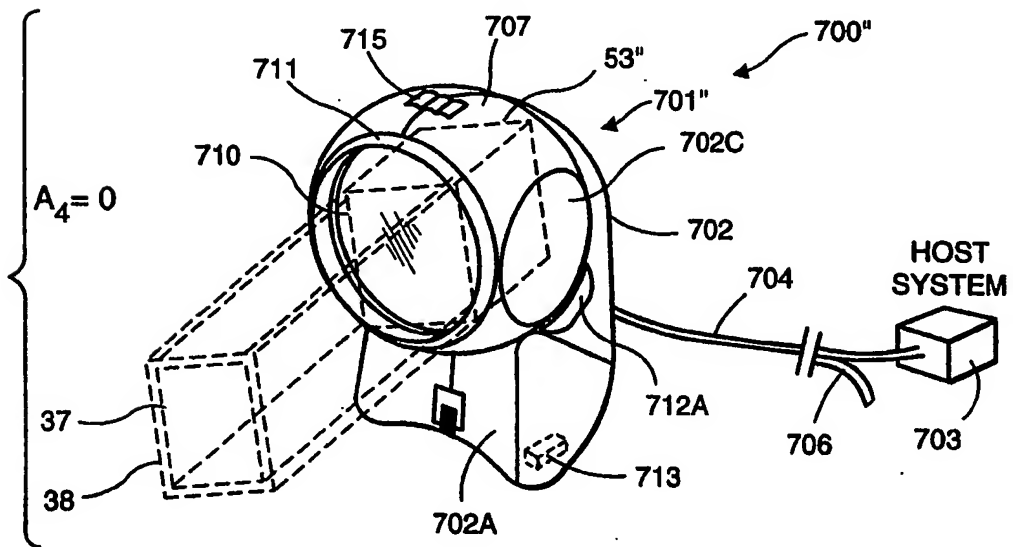


FIG. 8G

30/161

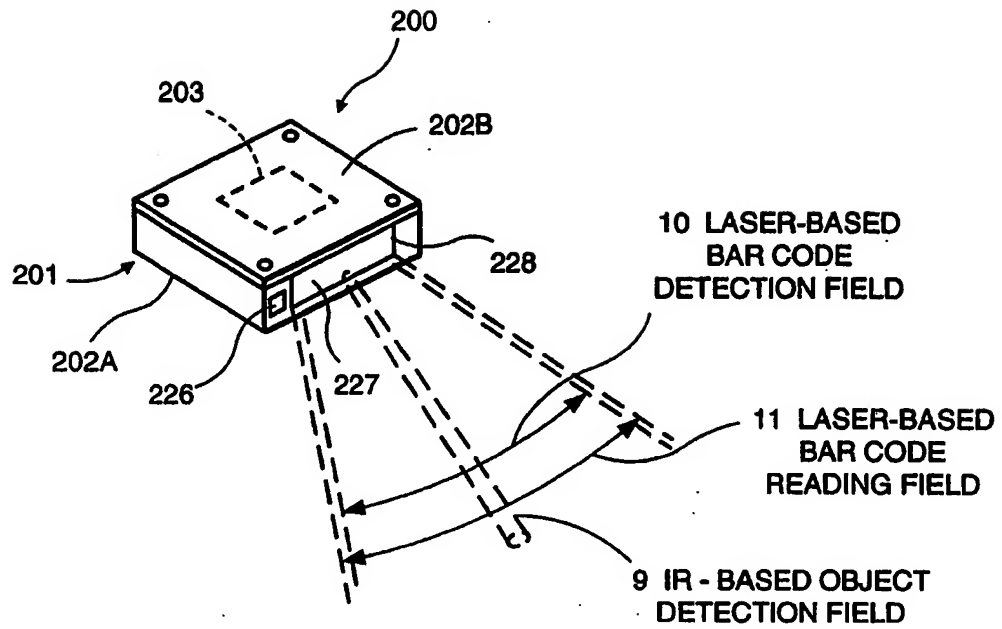


FIG. 9A

31/161

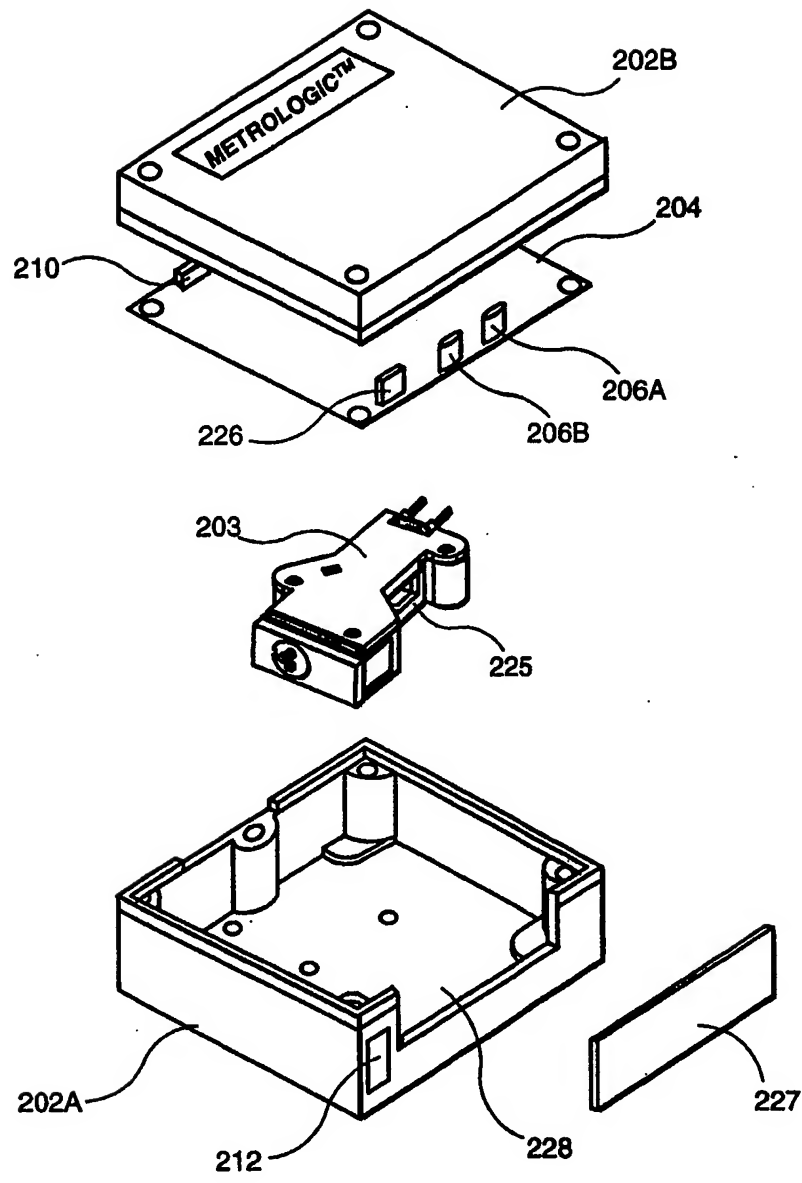


FIG. 9B

32/161

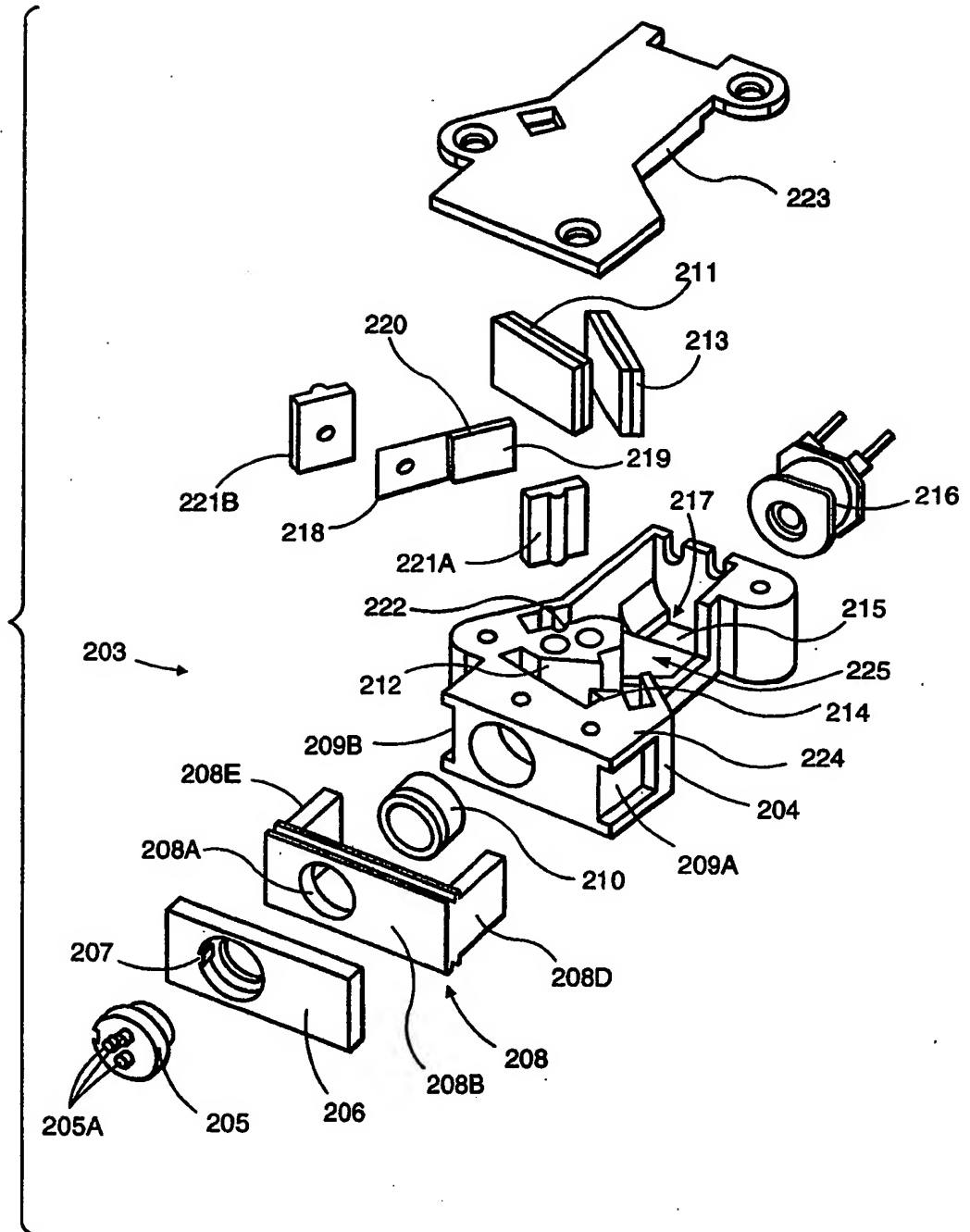


FIG. 9C

33/161

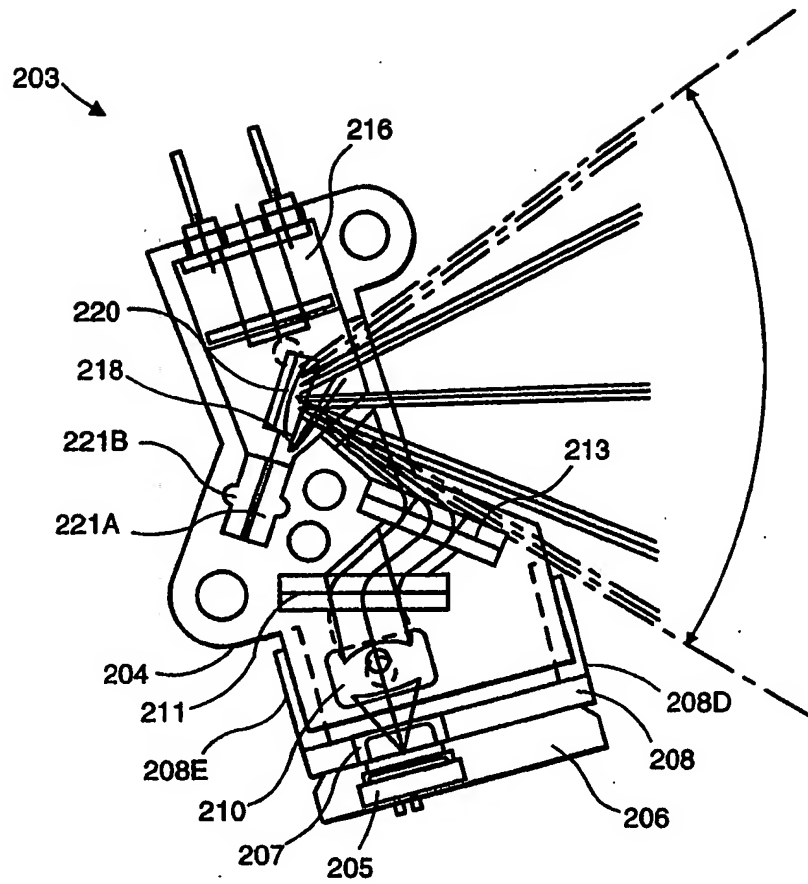


FIG. 9D

34/101

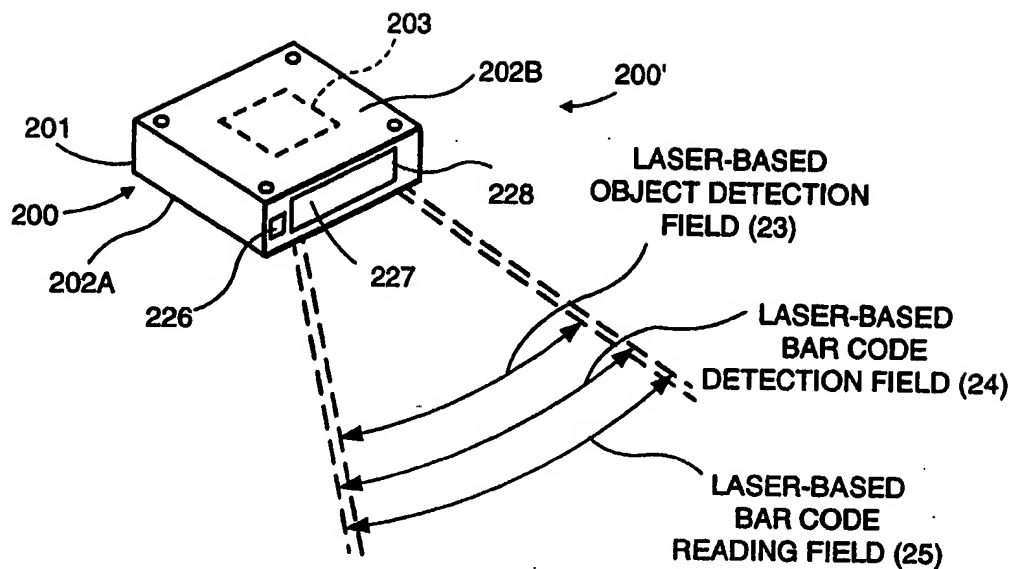


FIG. 9E

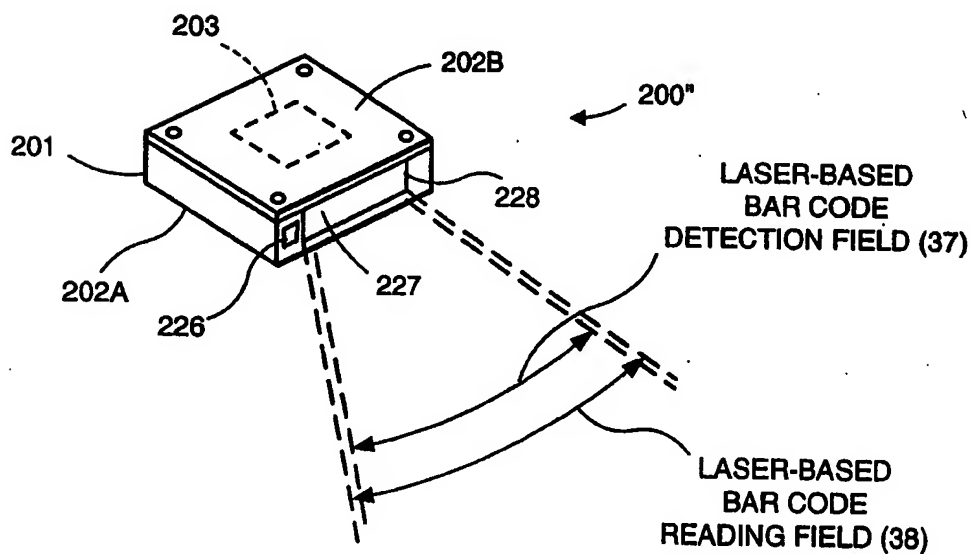


FIG. 9F

FIG. 10A

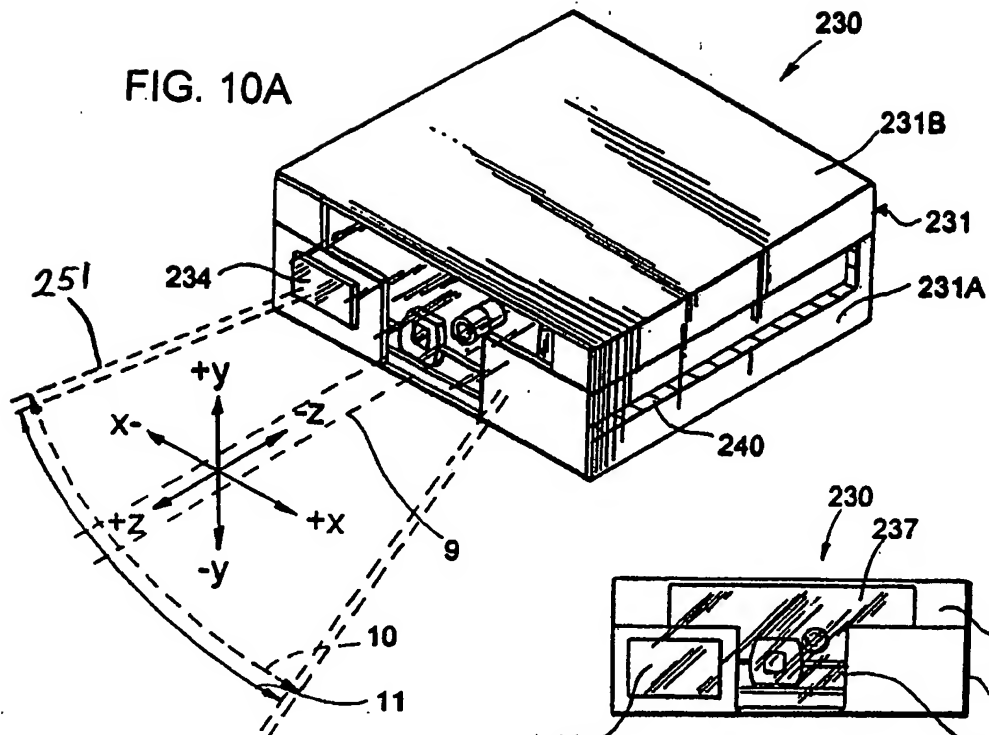


FIG. 10B

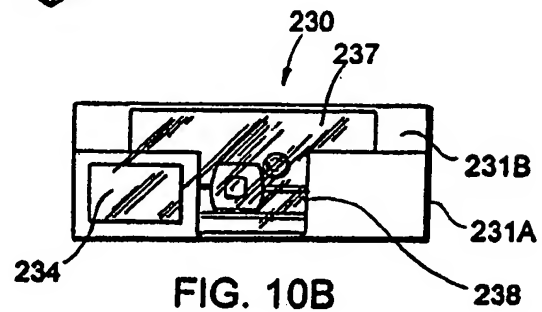


FIG. 10C

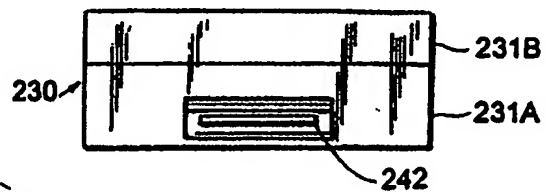
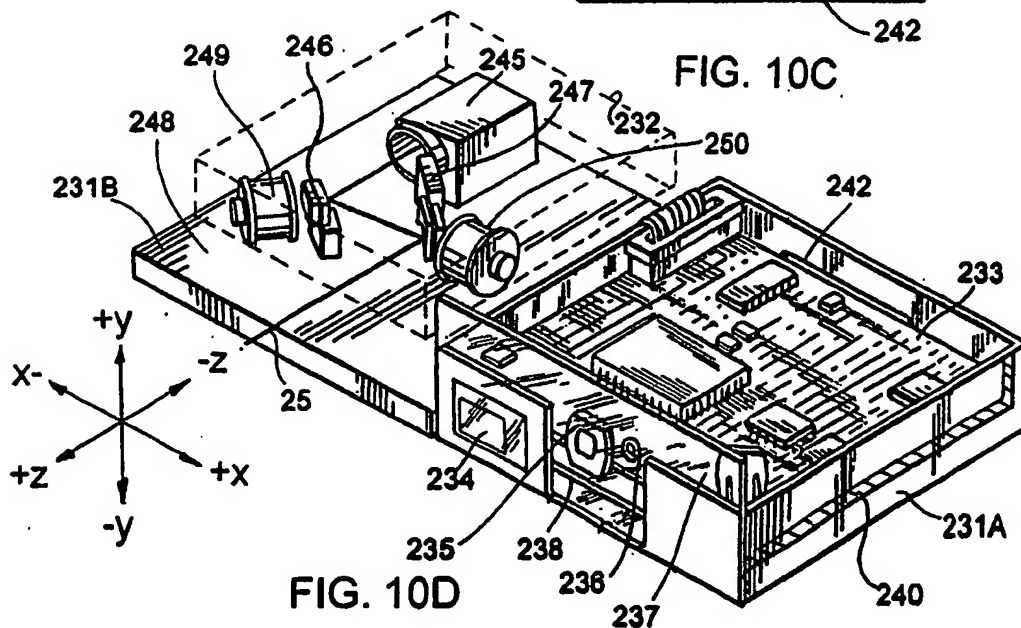


FIG. 10D



36/161

FIG. 10E

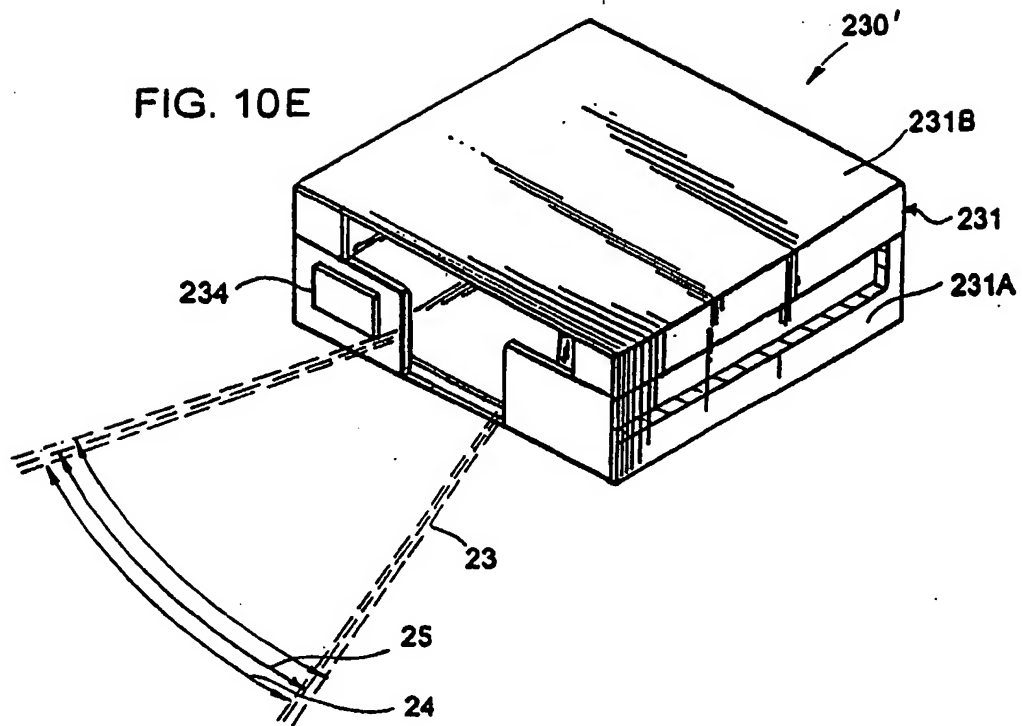
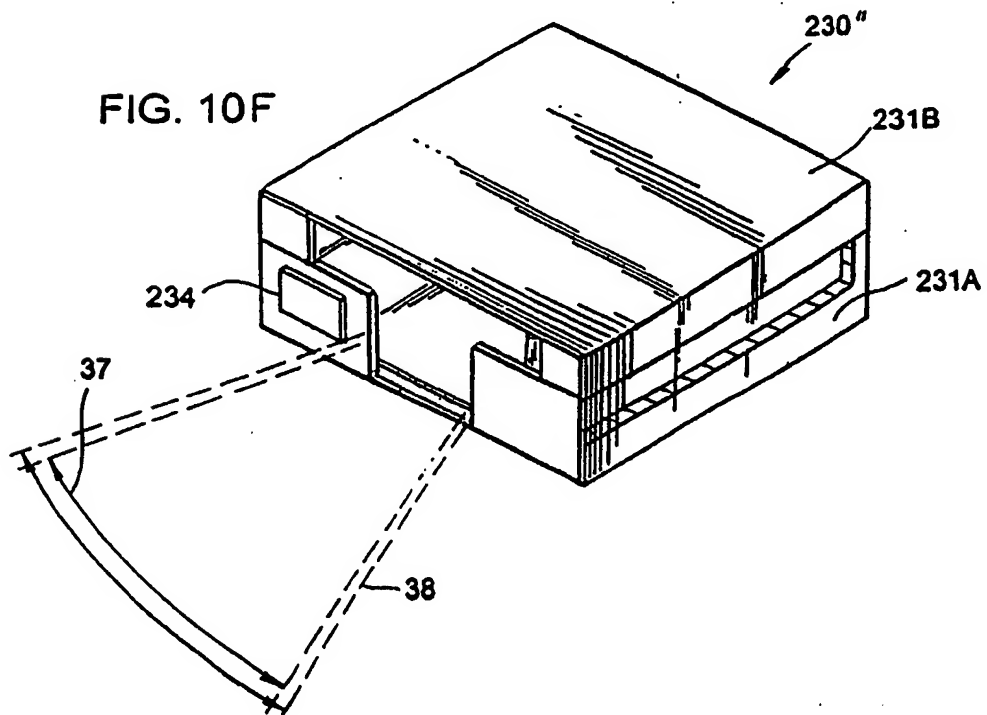


FIG. 10F



37/161

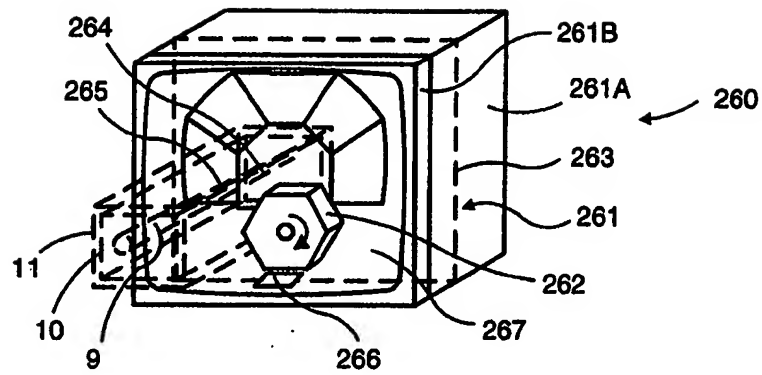


FIG. 11A

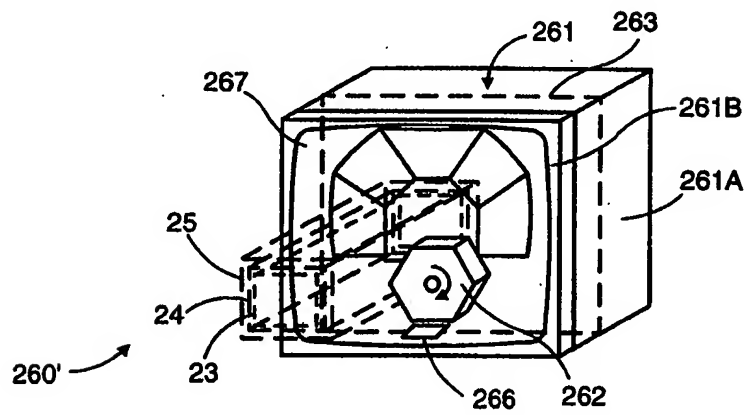


FIG. 11B

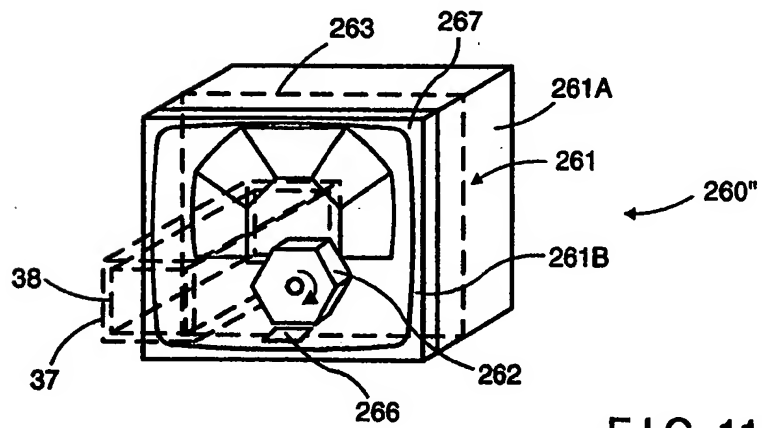


FIG. 11C

30/161

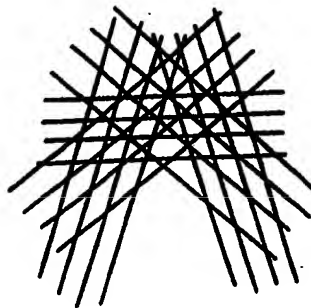


FIG. 12A

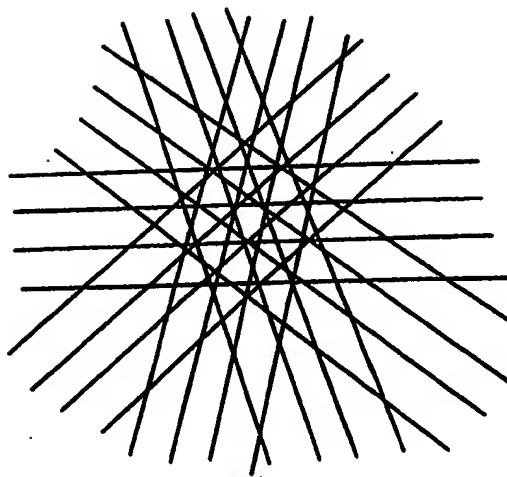


FIG. 12B

39/161

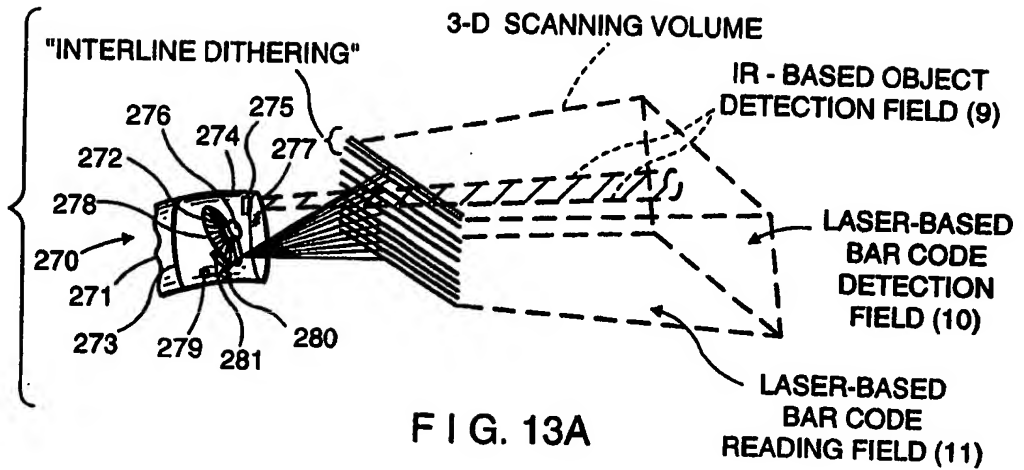


FIG. 13A

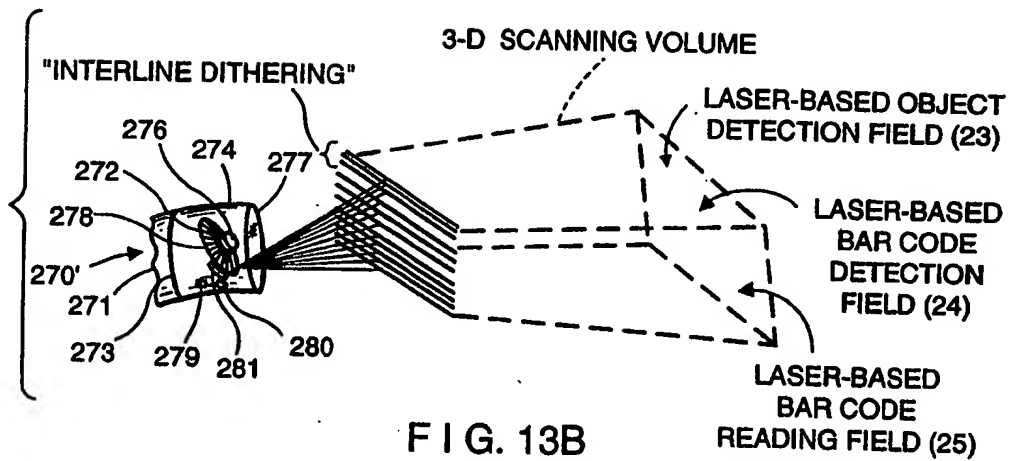


FIG. 13B

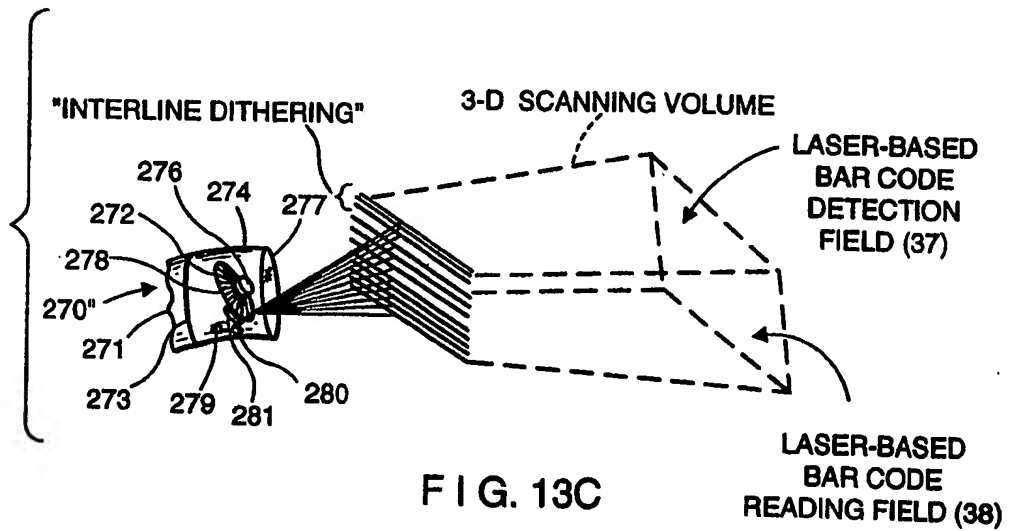


FIG. 13C

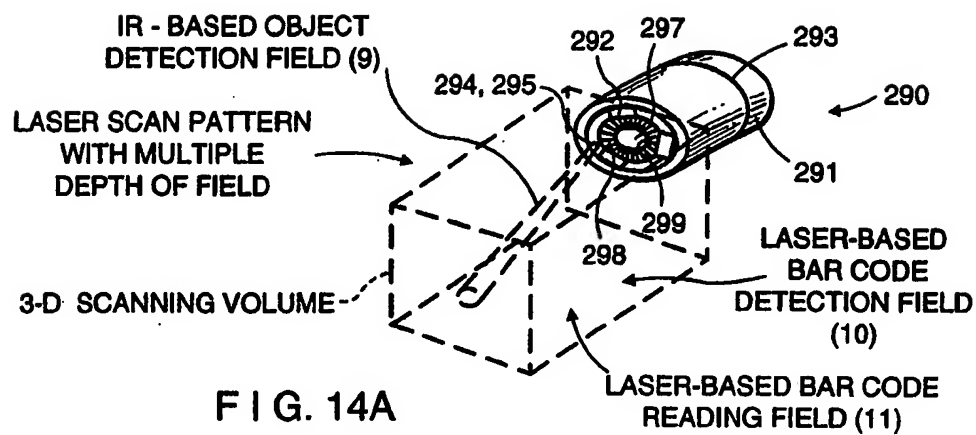


FIG. 14A

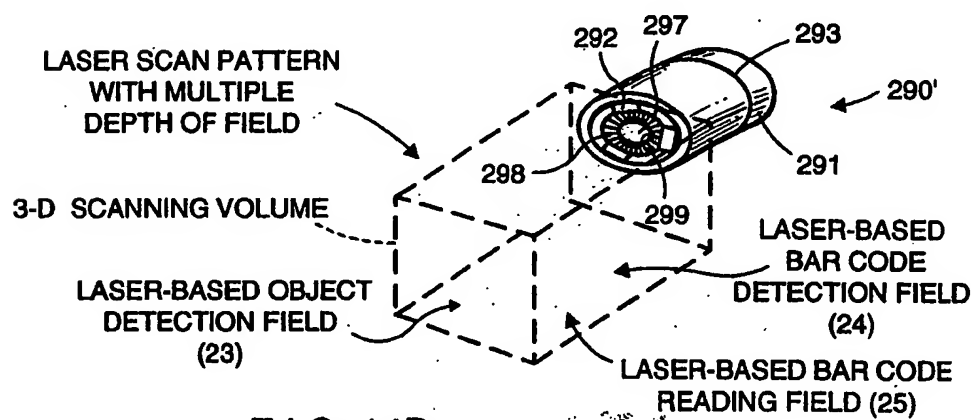


FIG. 14B

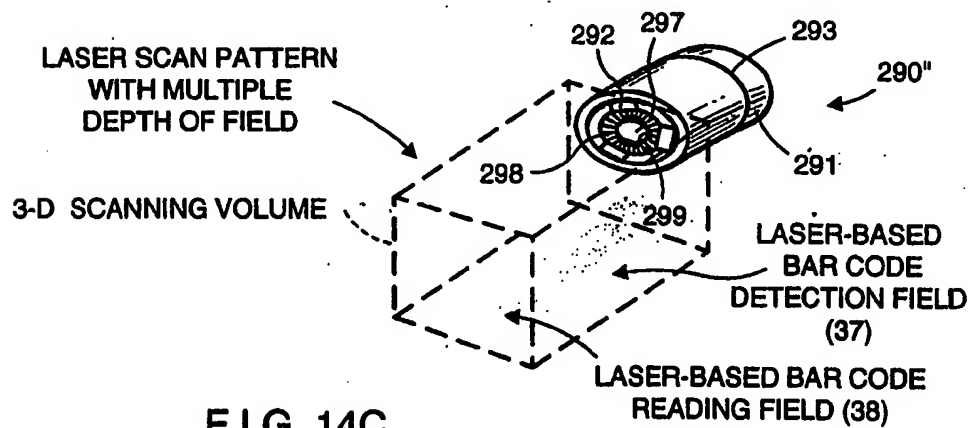


FIG. 14C

41/161

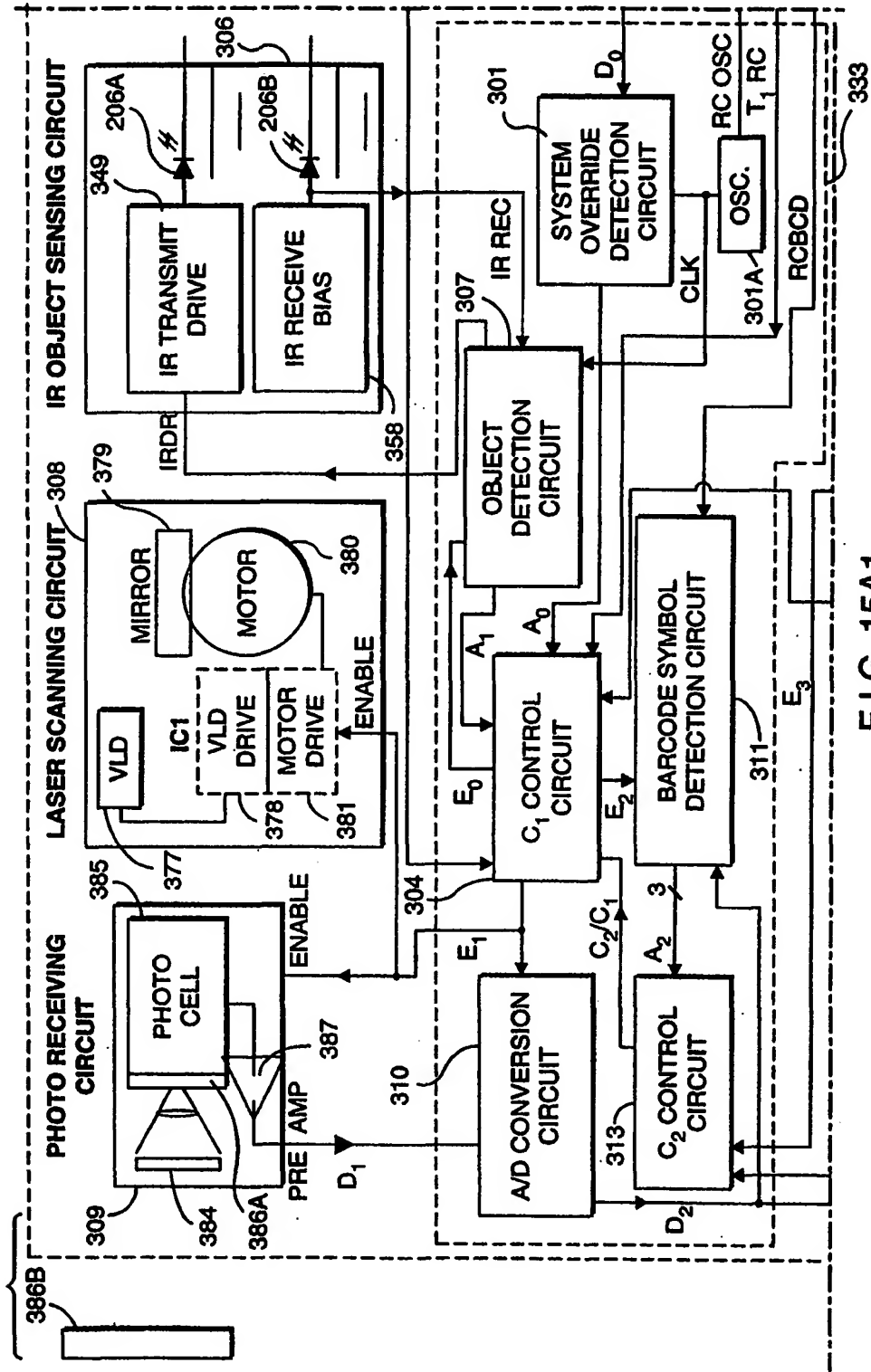


FIG. 15A1

42/161

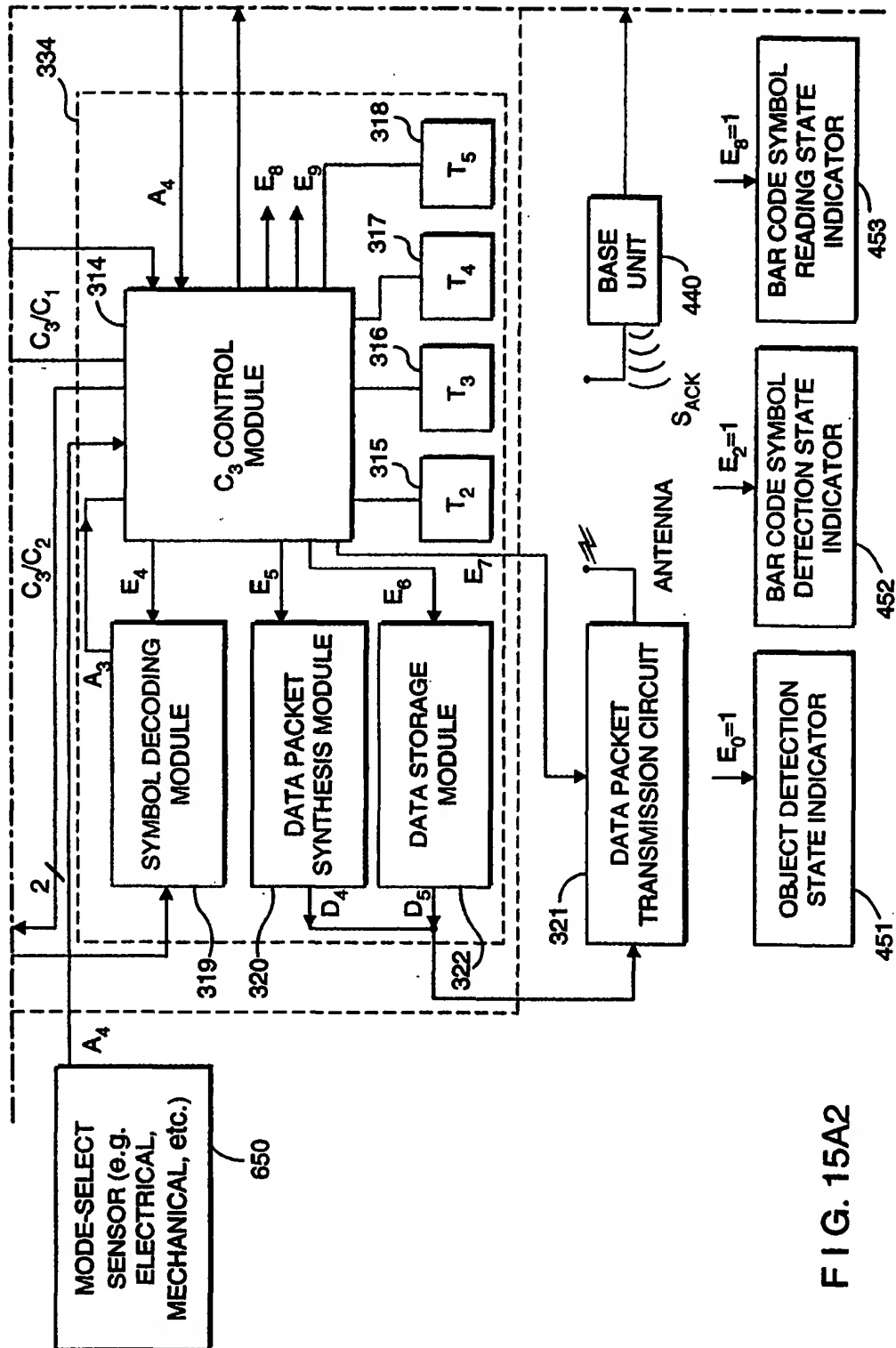


FIG. 15A2

13/161

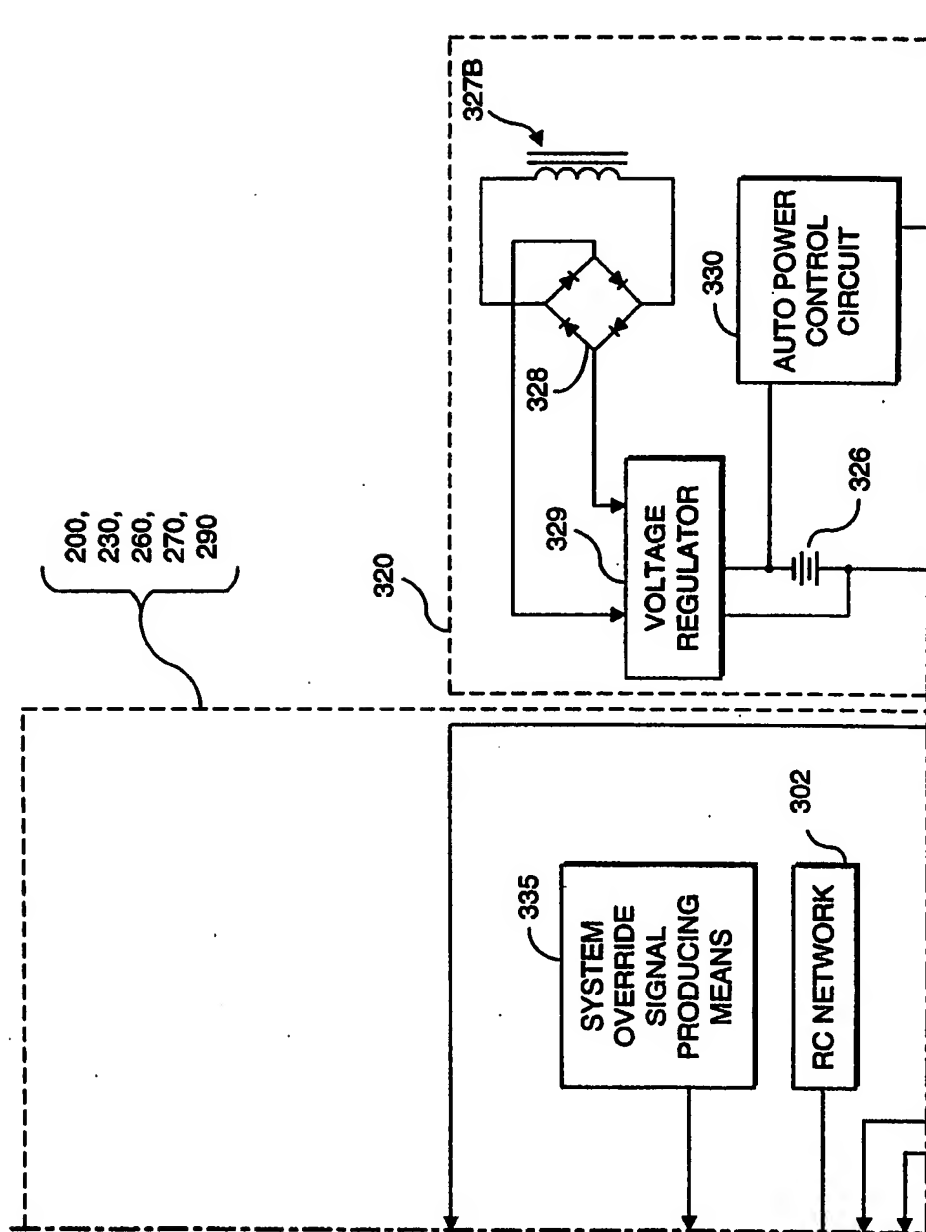
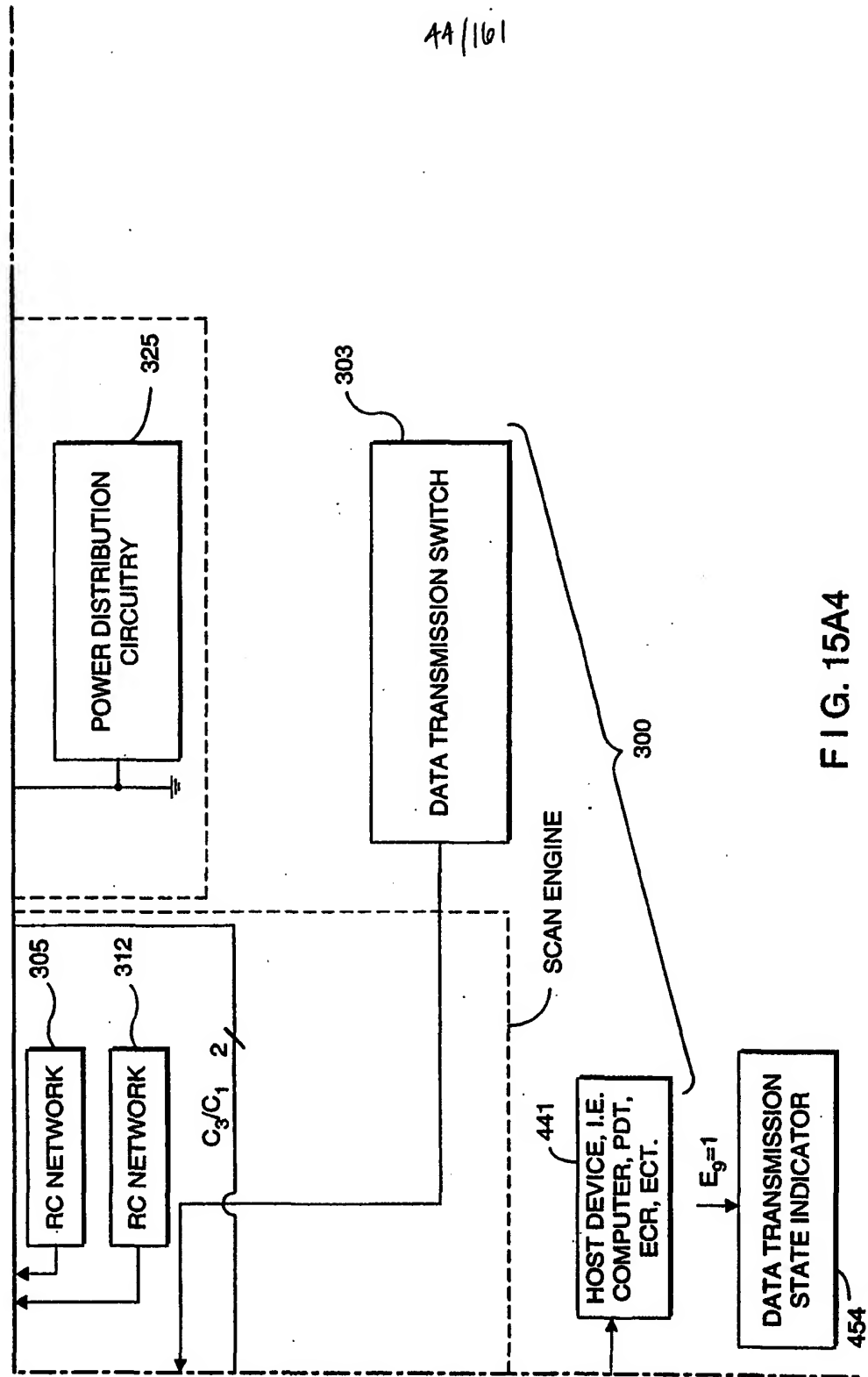


FIG. 15A3

4A/161



45/161

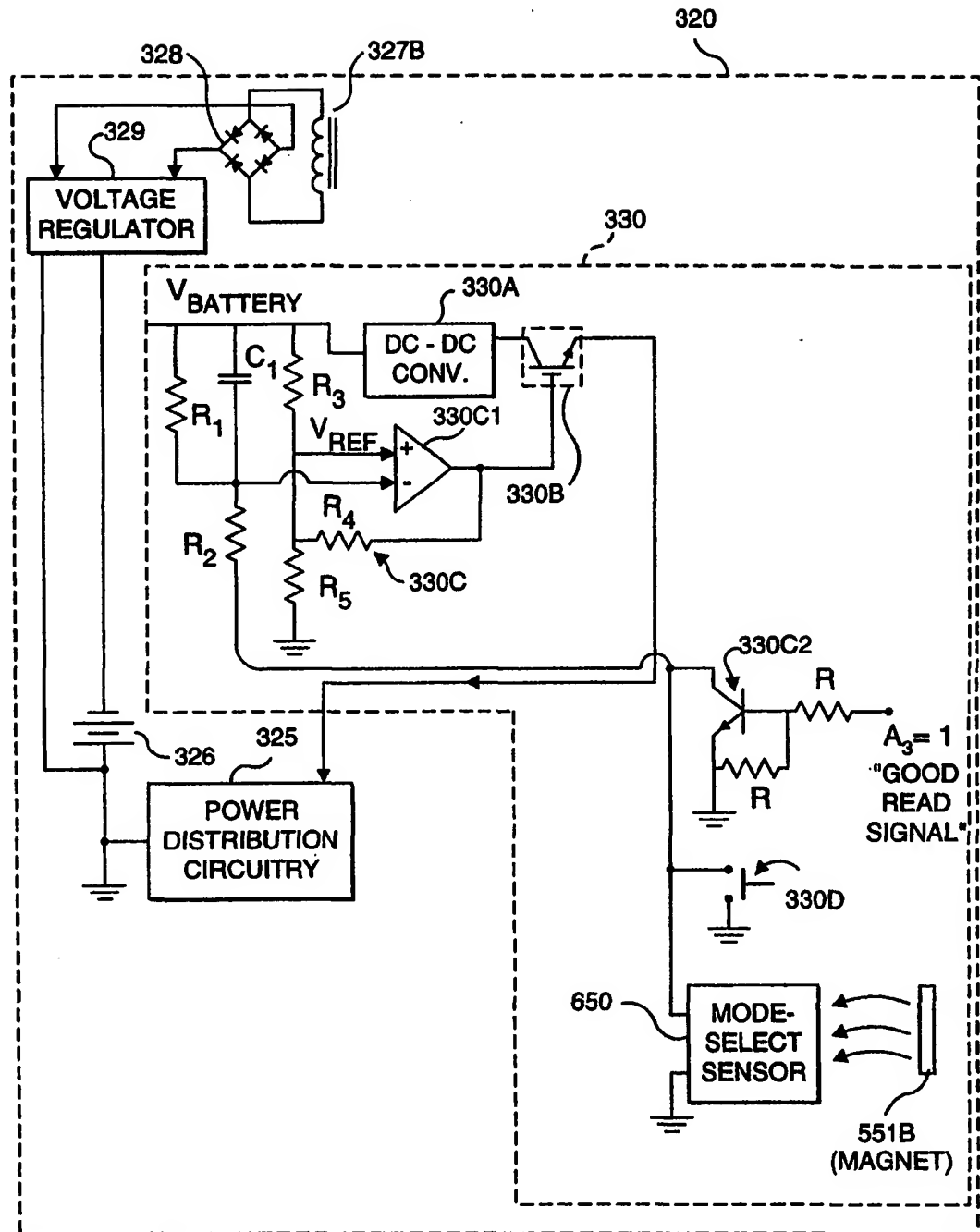


FIG. 15B1

46/161

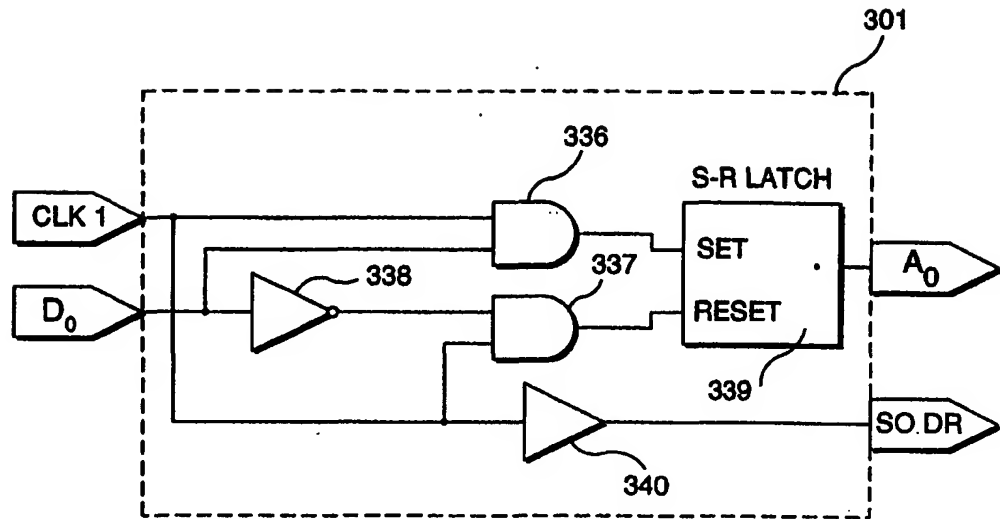


FIG. 15B2

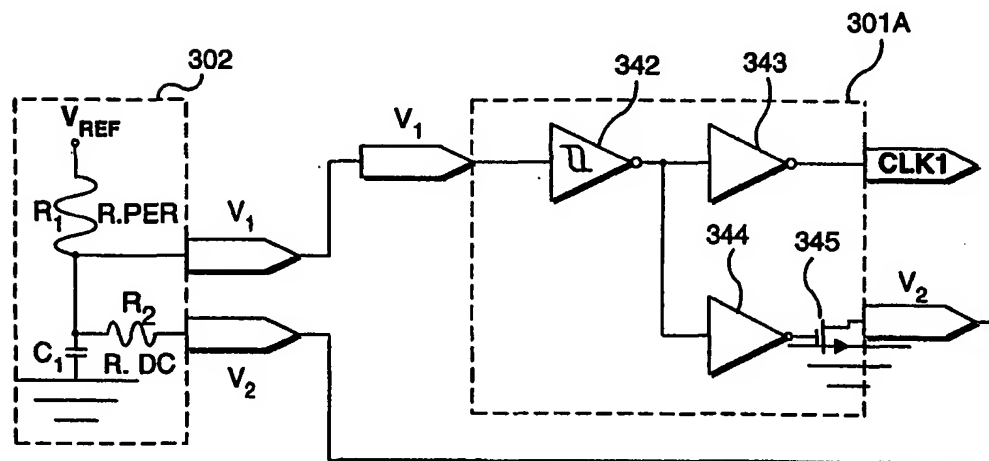


FIG. 15C

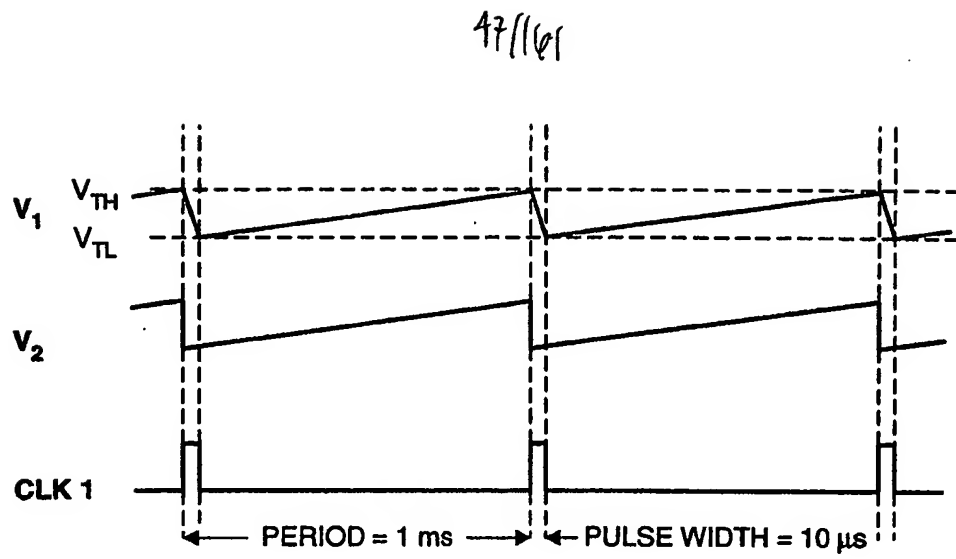


FIG. 15D

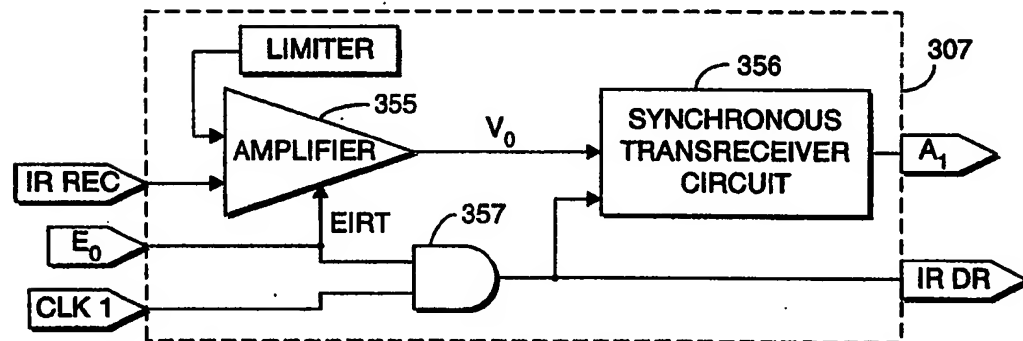


FIG. 15E

48/161

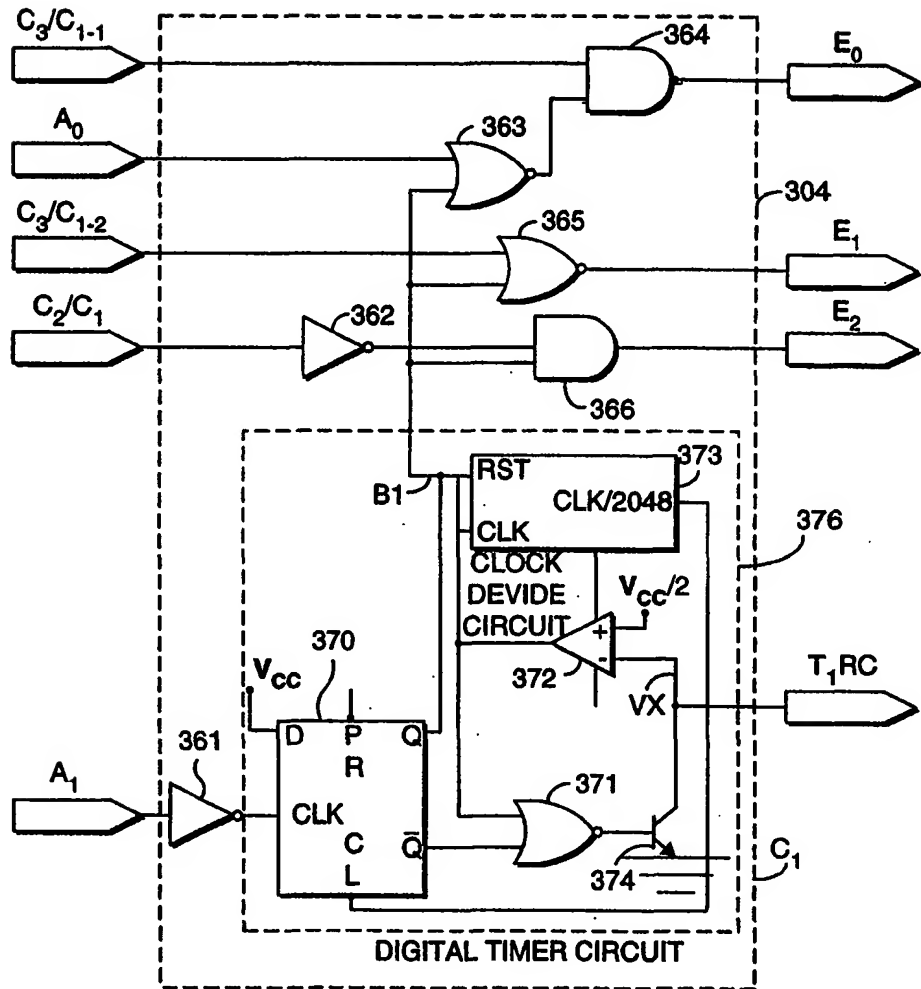


FIG. 15F

49/161

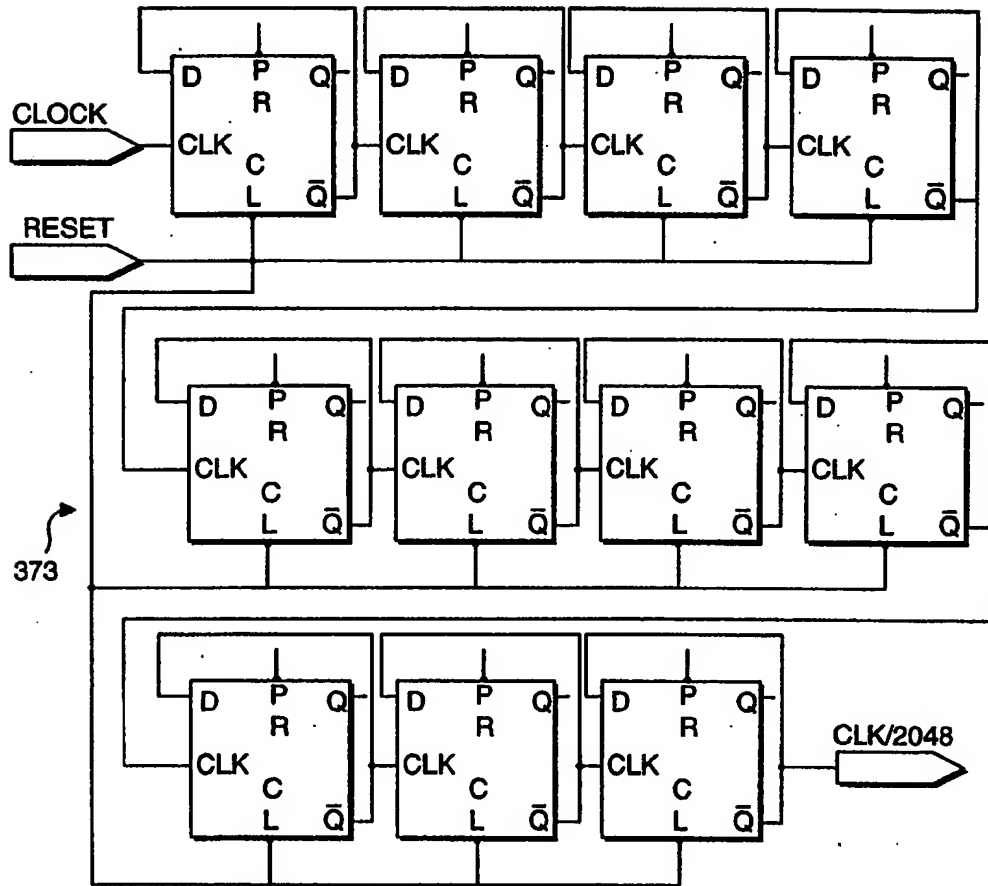


FIG. 15G

50/161

$$\left. \begin{aligned} E_0 &= (B1 + A_0) (C_3 / C_{1-1}) \\ E_1 &= (C_3 / C_{1-2}) + B1 \\ E_2 &= (C_2 / C_1) (T_1) \end{aligned} \right\}$$

FIG. 15H

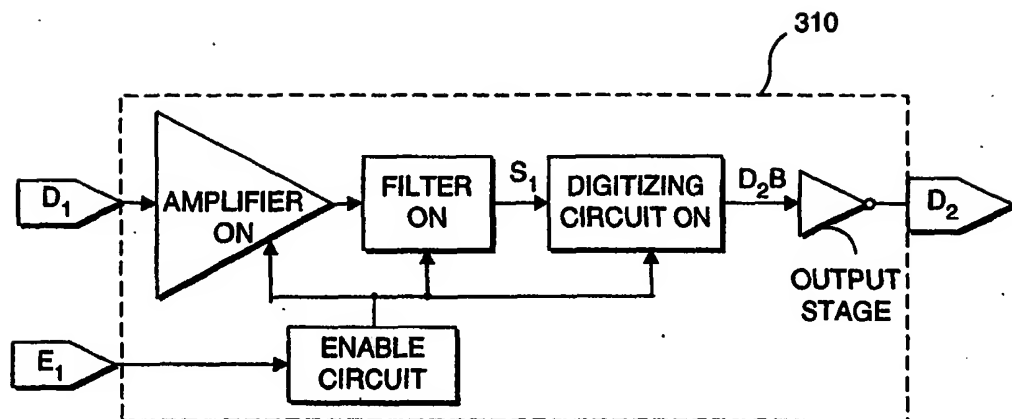


FIG. 15I

51/161

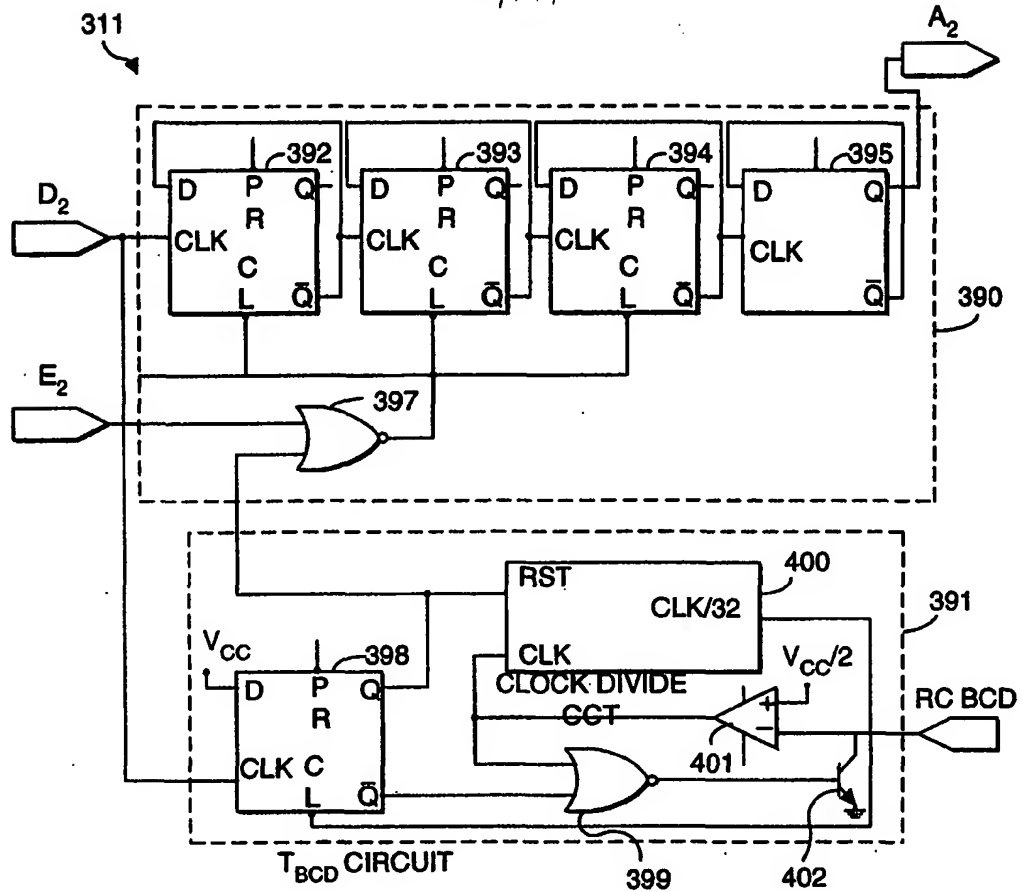


FIG. 15J

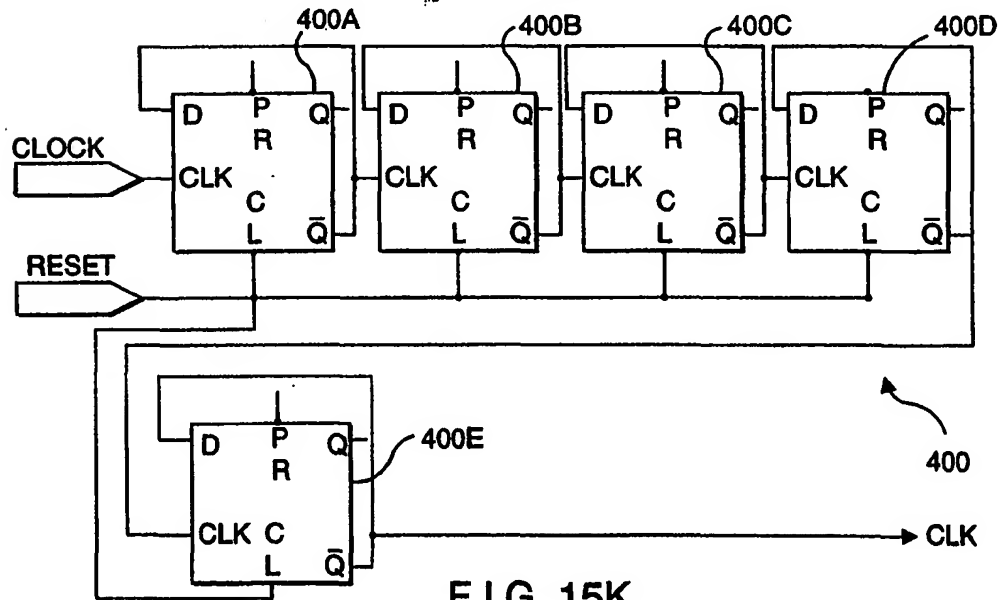


FIG. 15K

52/161

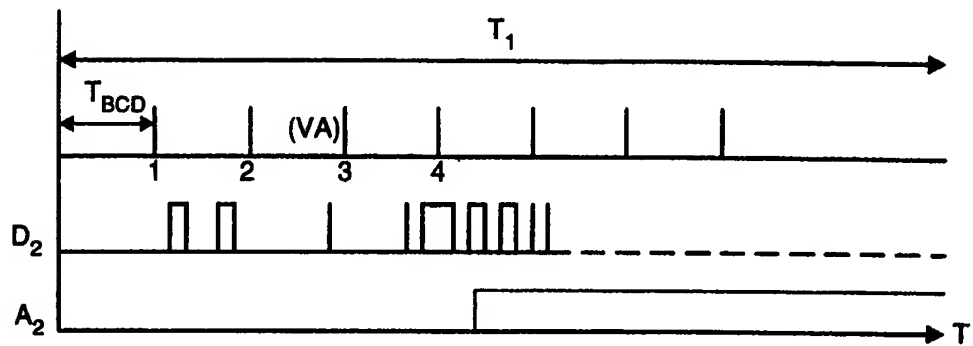


FIG. 15L

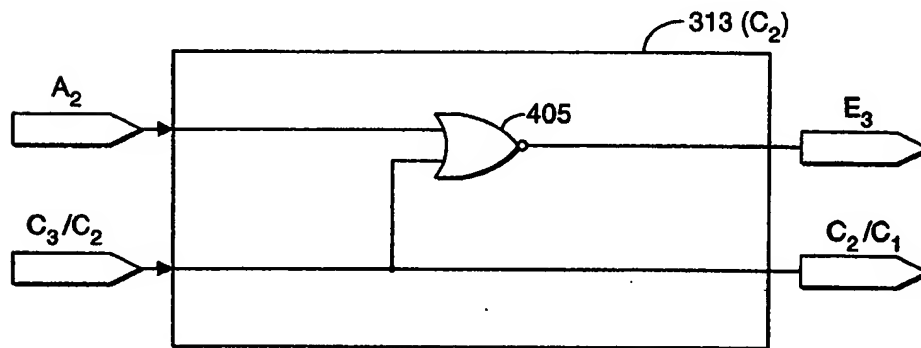


FIG. 15M

C_3/C_2	A_2	E_3	C_2/C_1
0	0	0	0
0	1	1	0
1	X	1	1

X: DON'T CARE (I.E. C_3/C_2 OVERRIDES A_2)

FIG. 15N

53/161

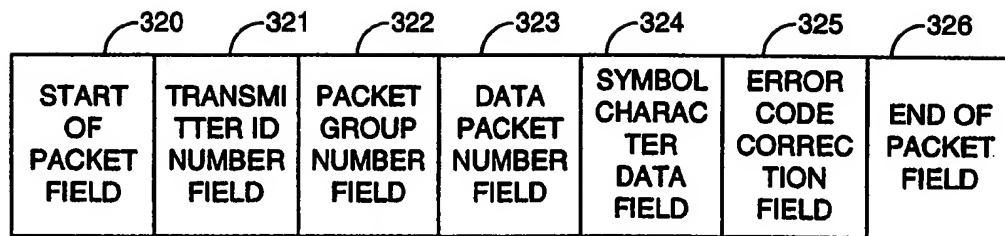


FIG. 150

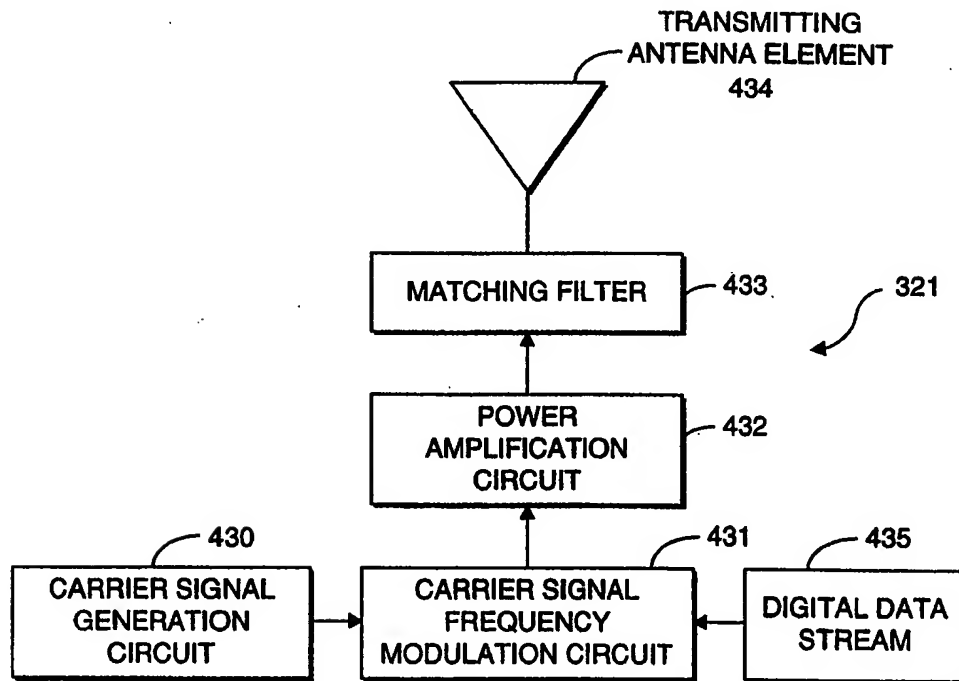


FIG. 16

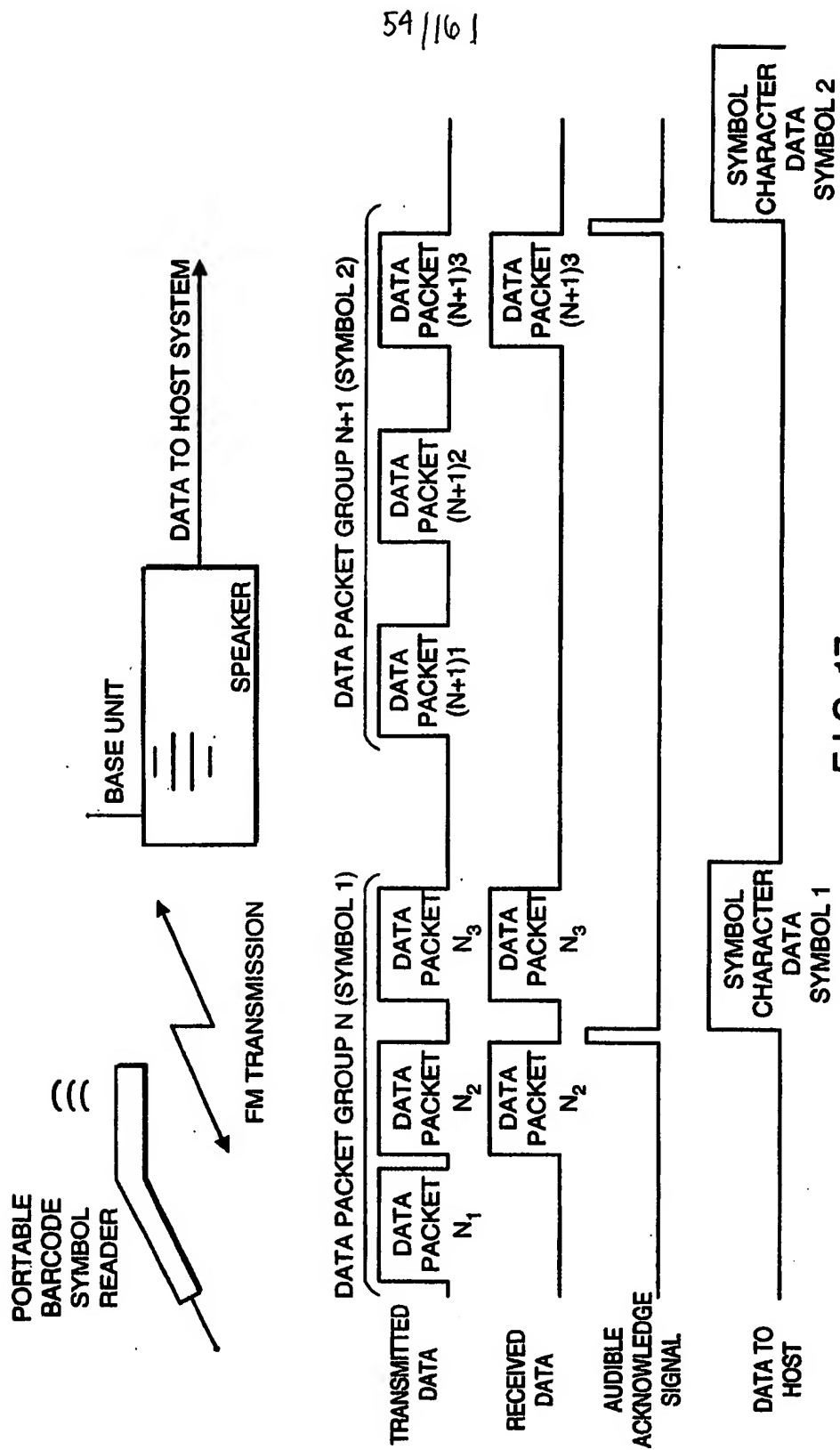
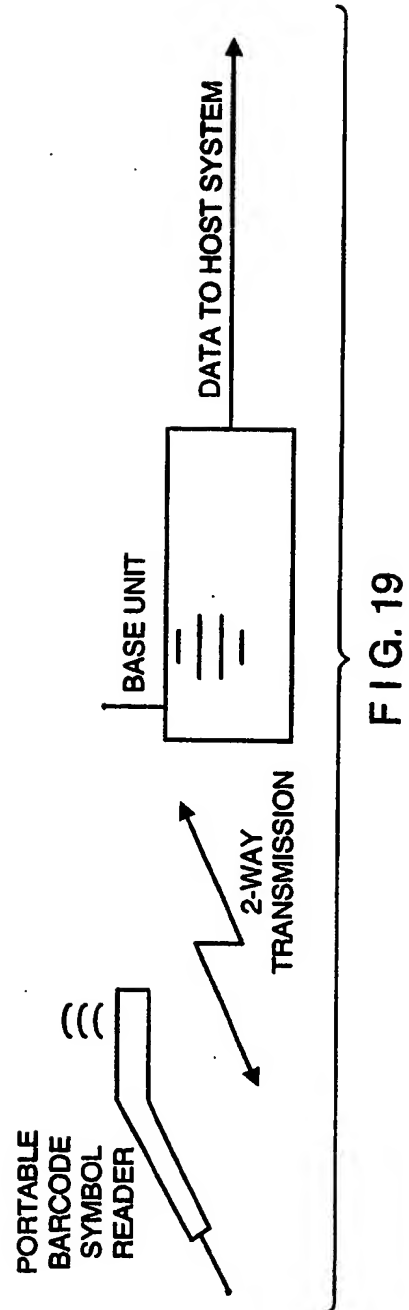
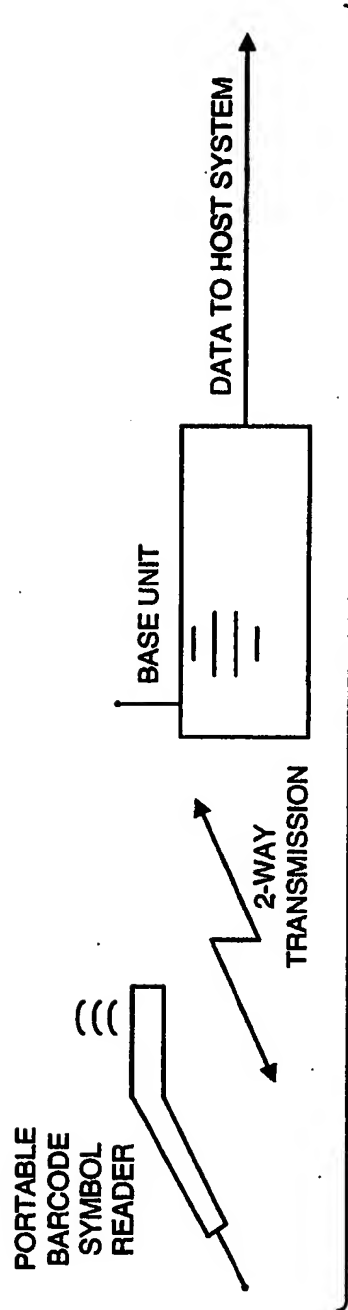


FIG. 17



56/161

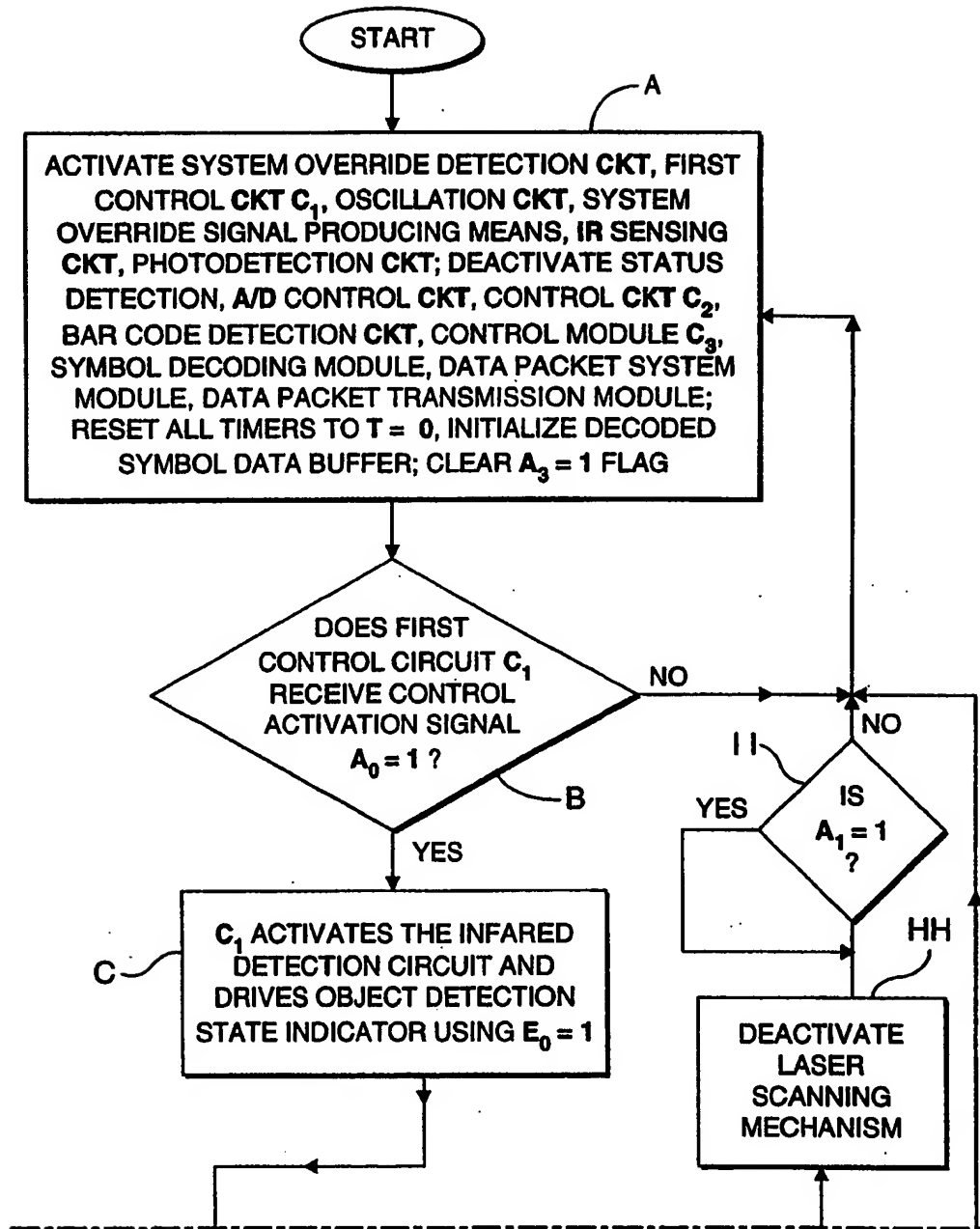
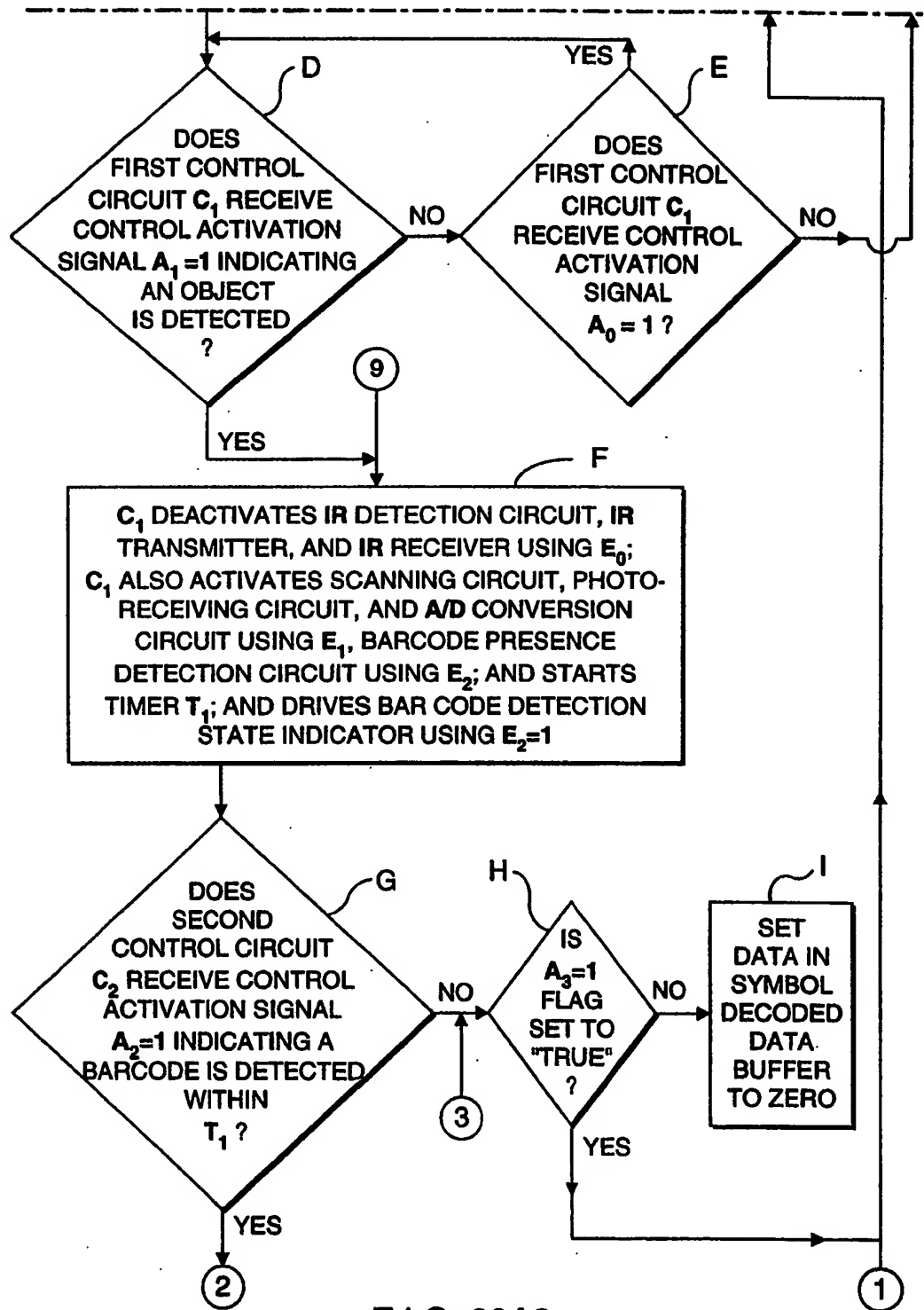
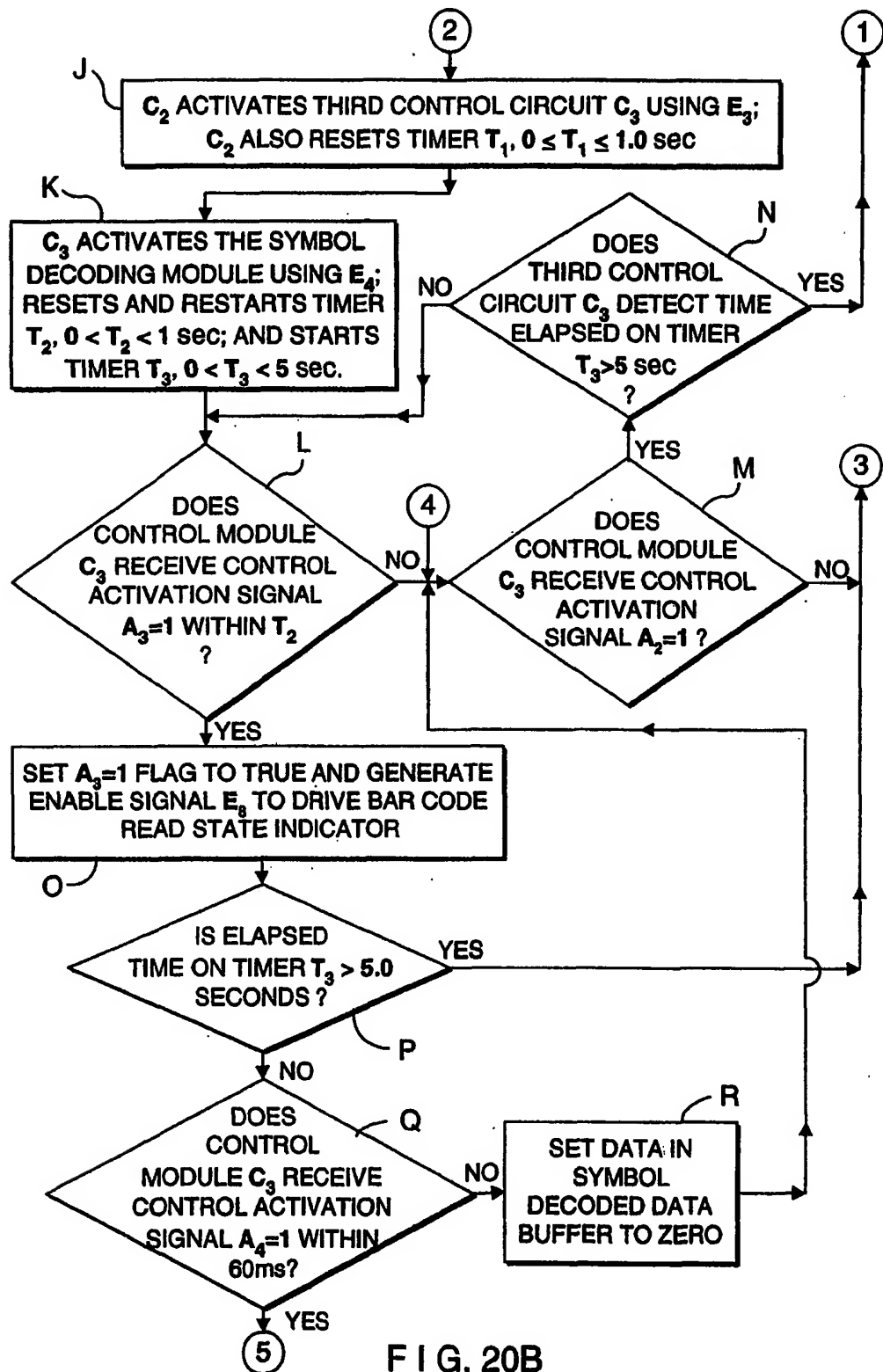


FIG. 20A1

57/161



50/161



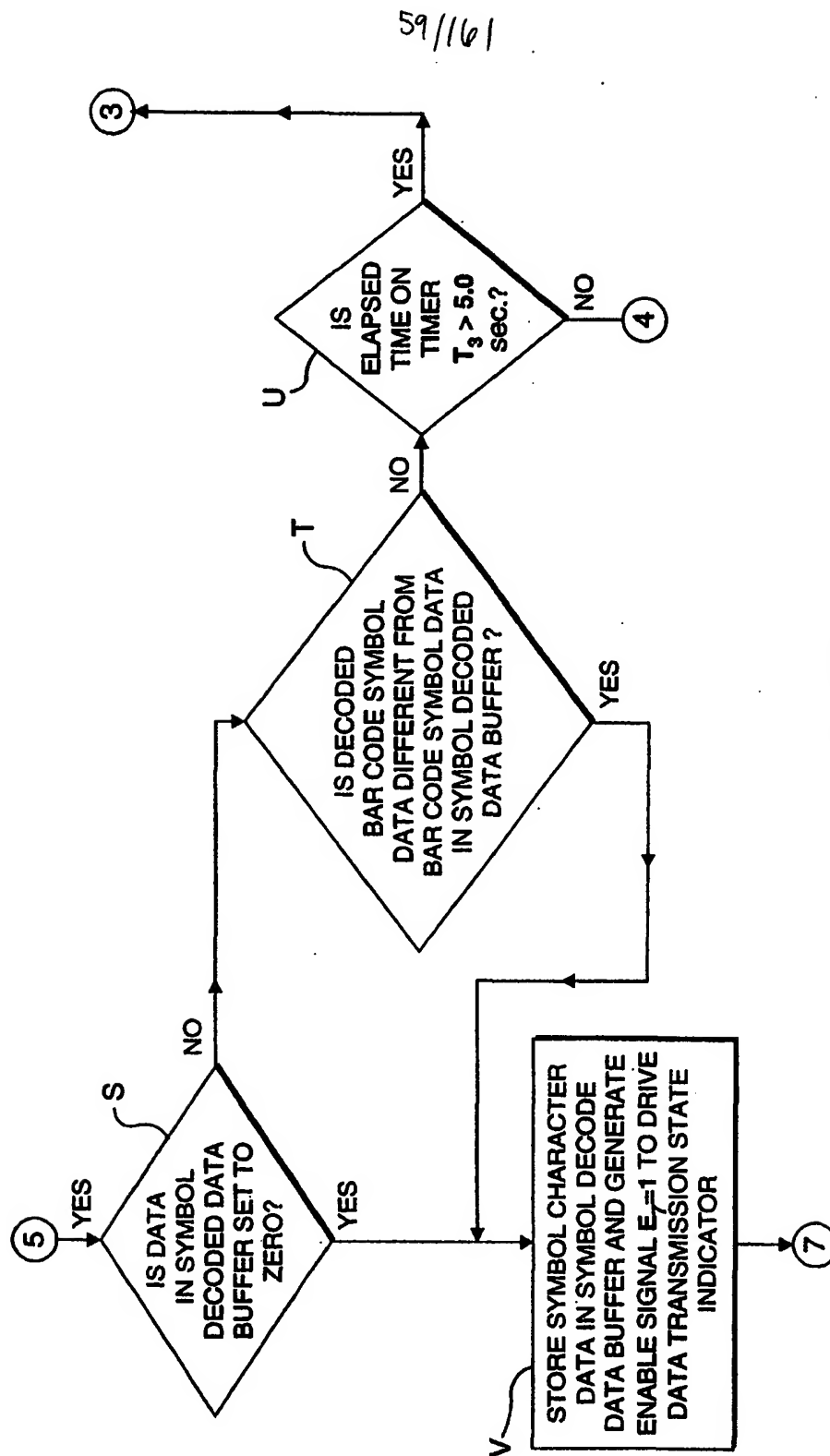


FIG. 20C

601171

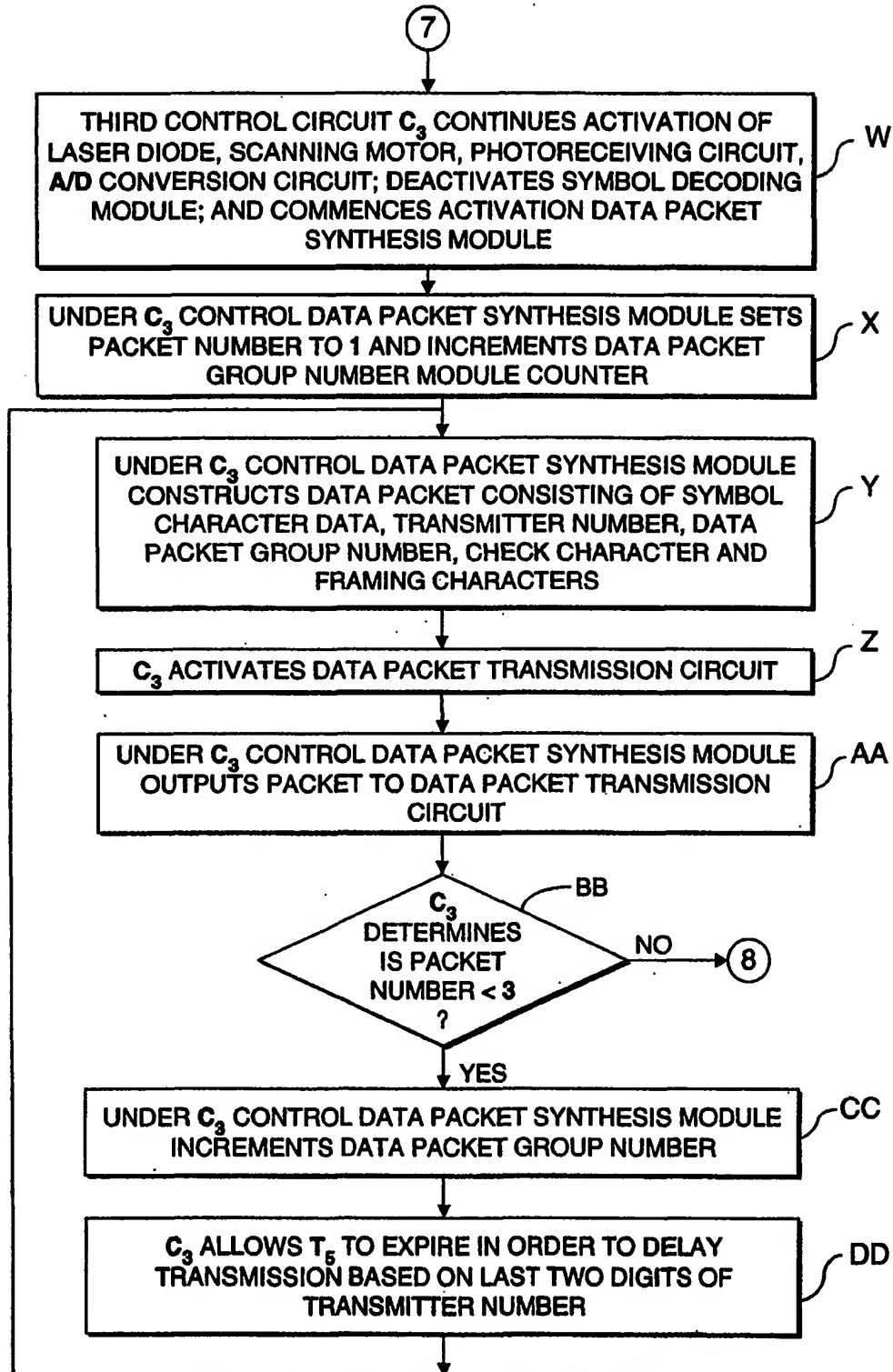


FIG. 20D

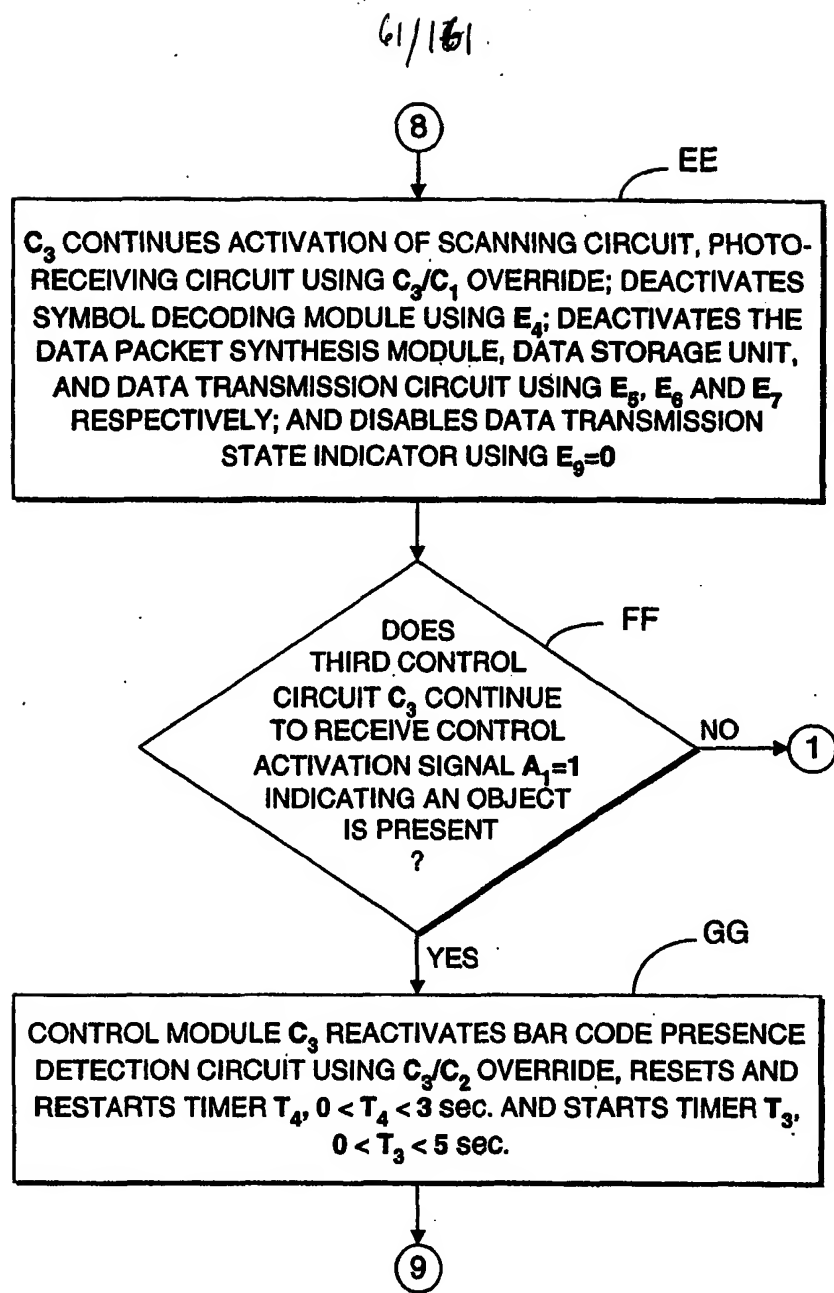


FIG. 20E

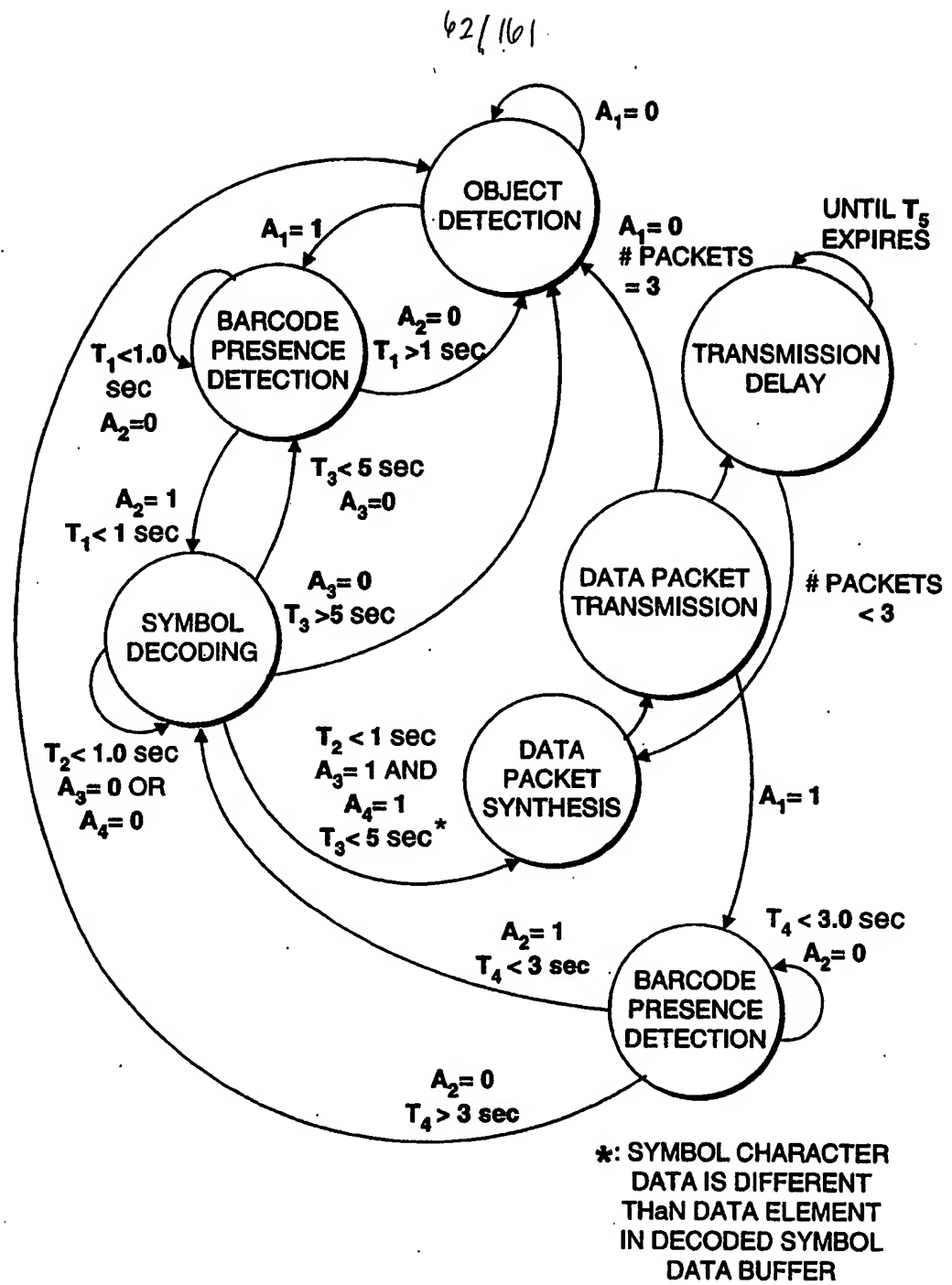


FIG. 21

63/161

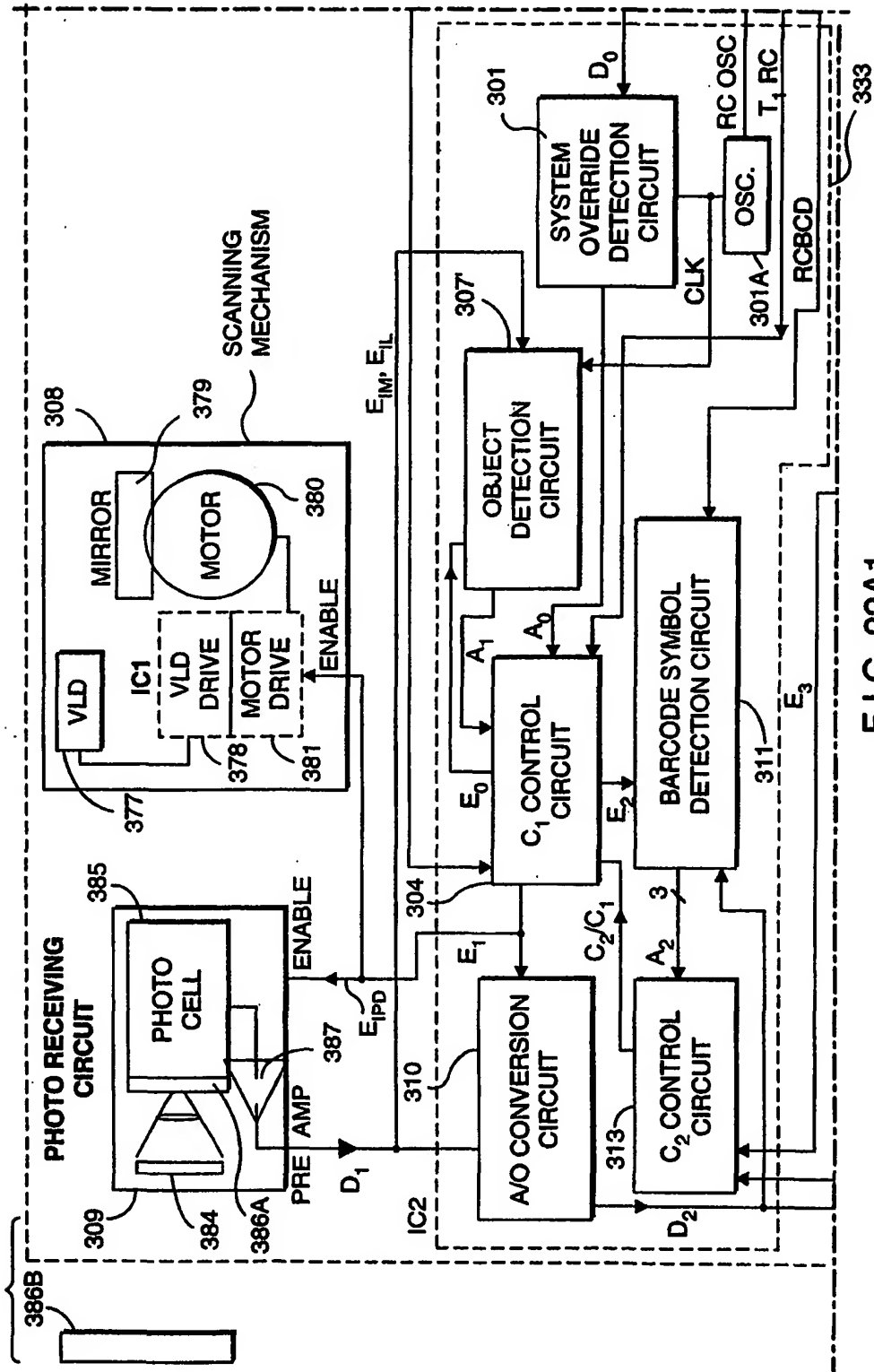


FIG. 22A1

6A/161

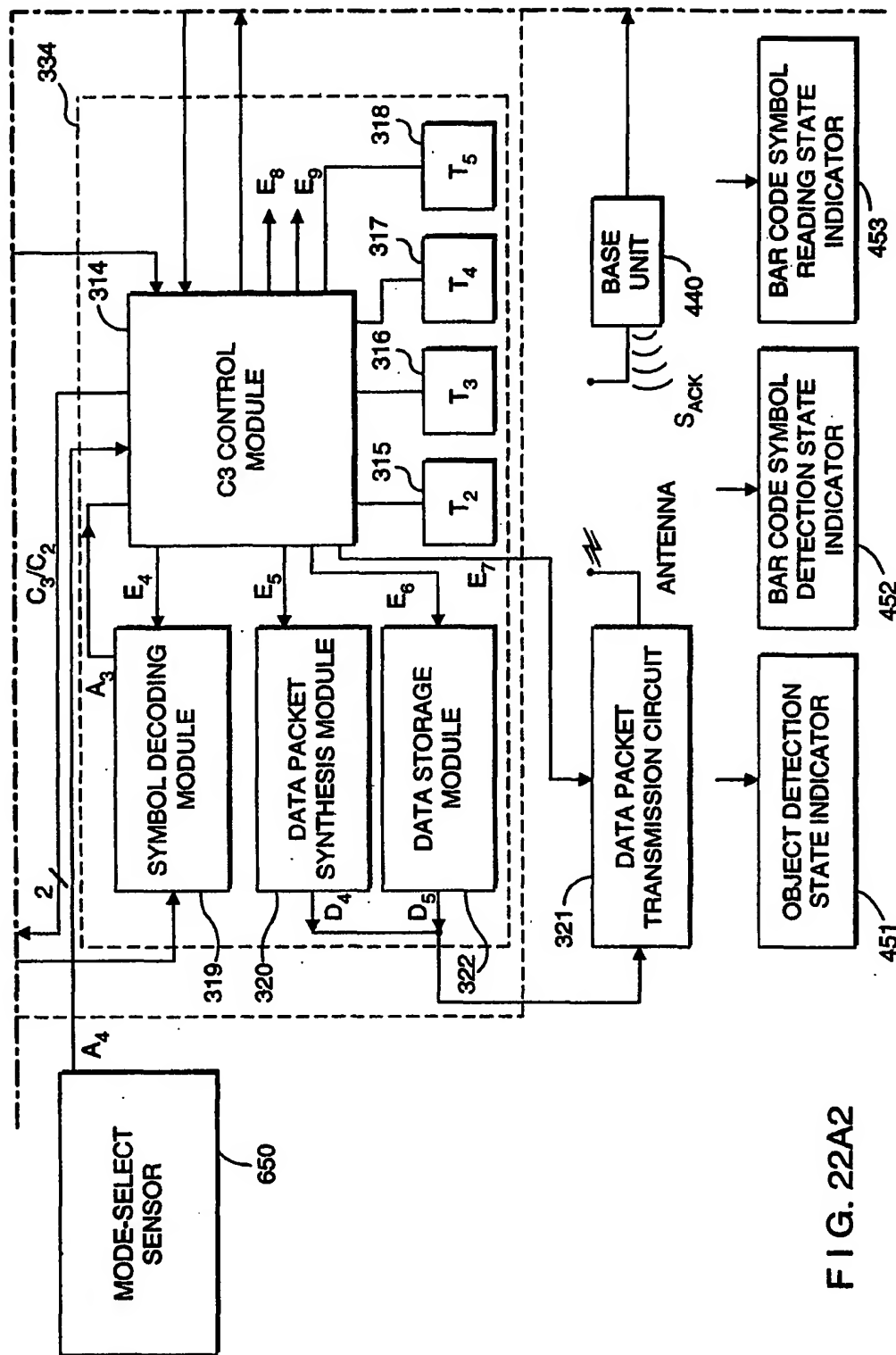


FIG. 22A2

65/161

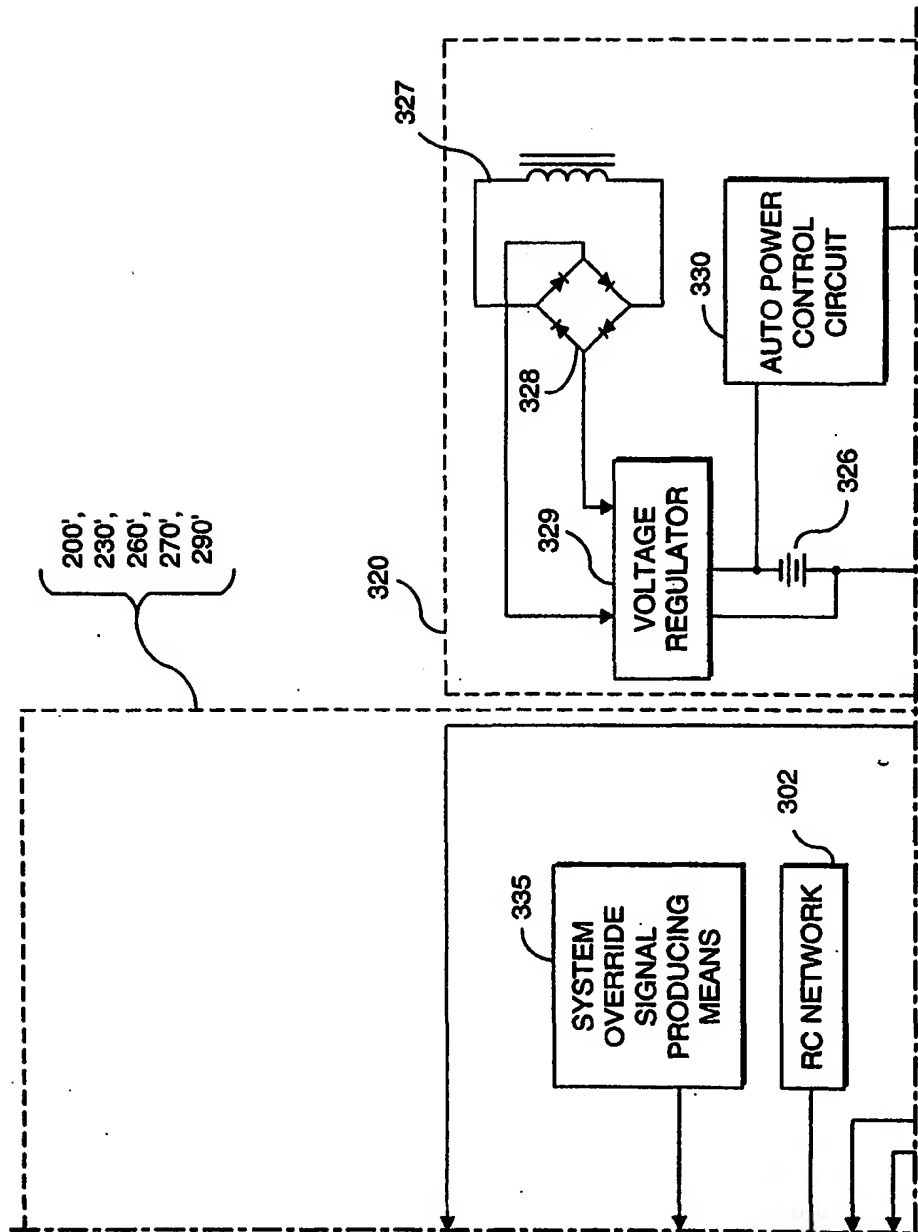


FIG. 22A3

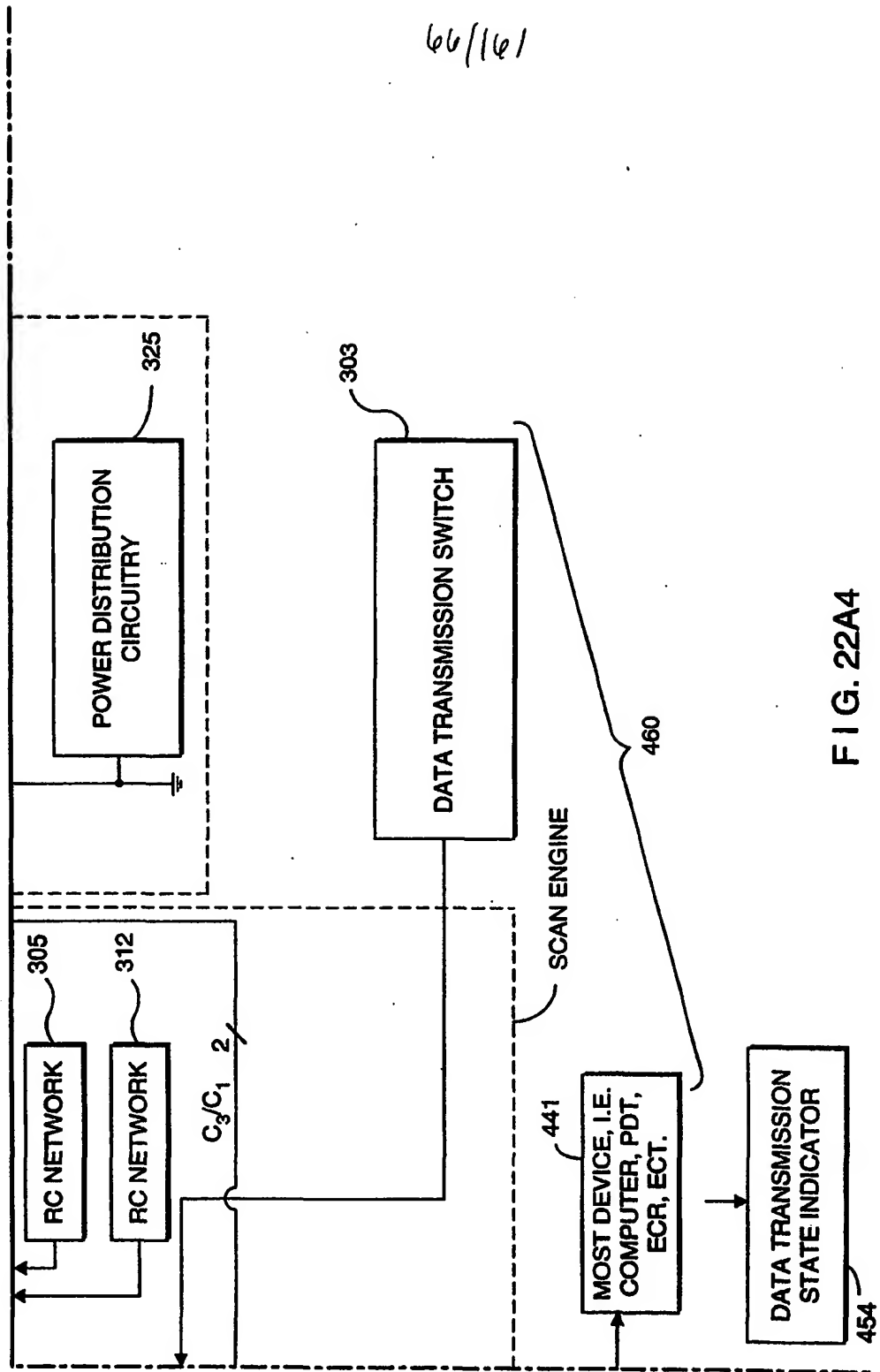


FIG. 22A4

67/161

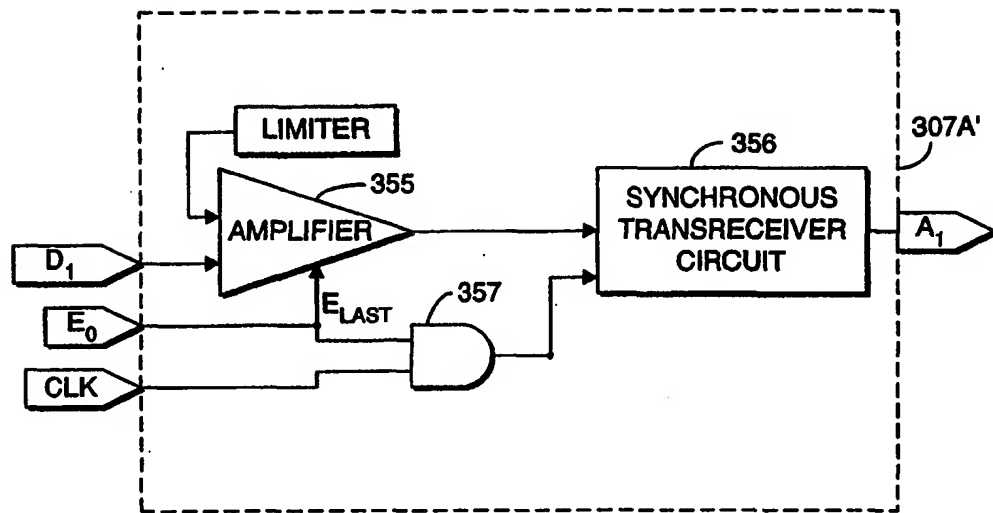


FIG. 22B

68/141

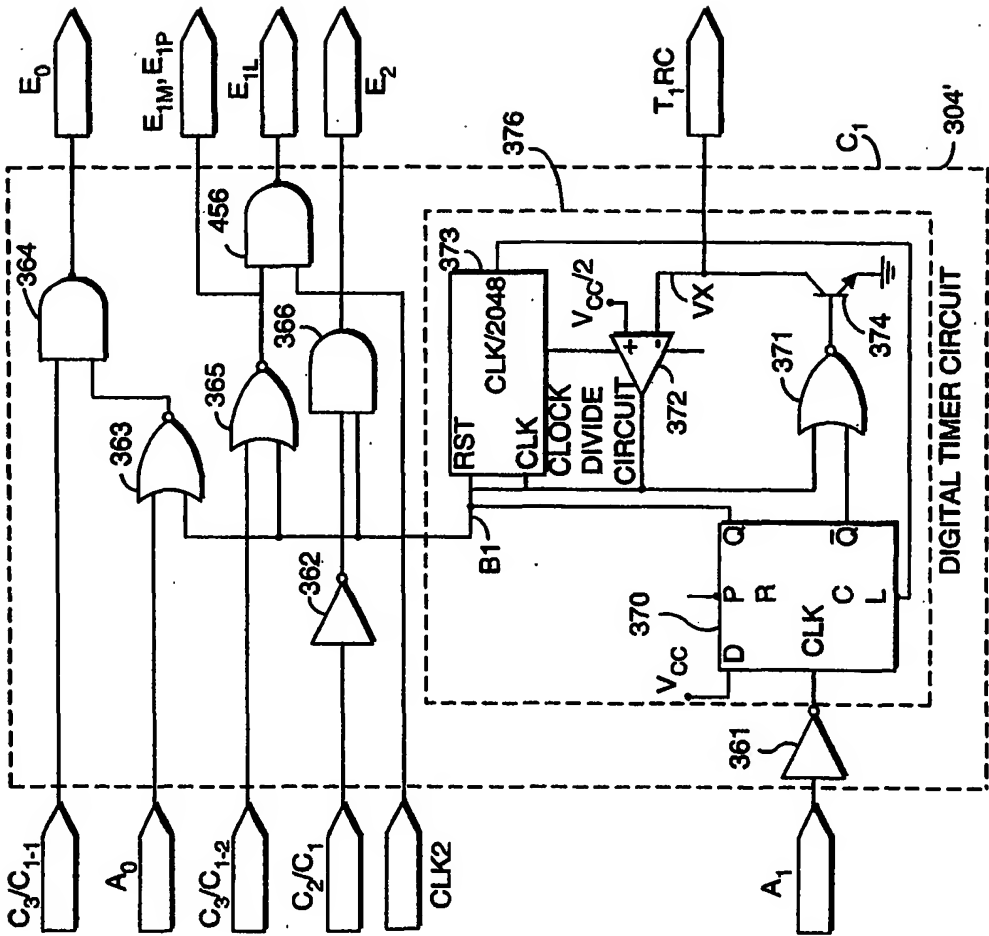


FIG. 22C

69/161

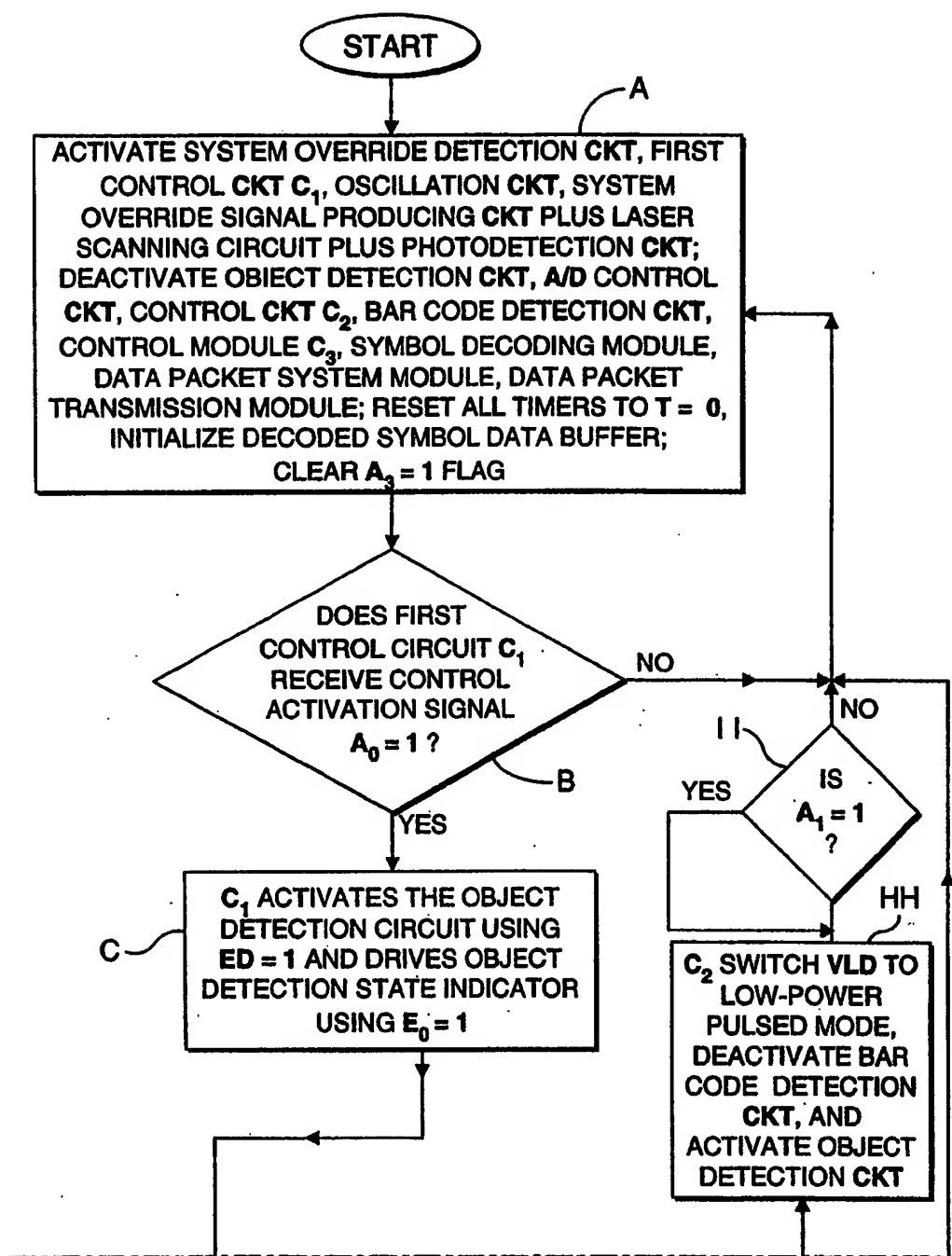


FIG. 23A1

70/16.1

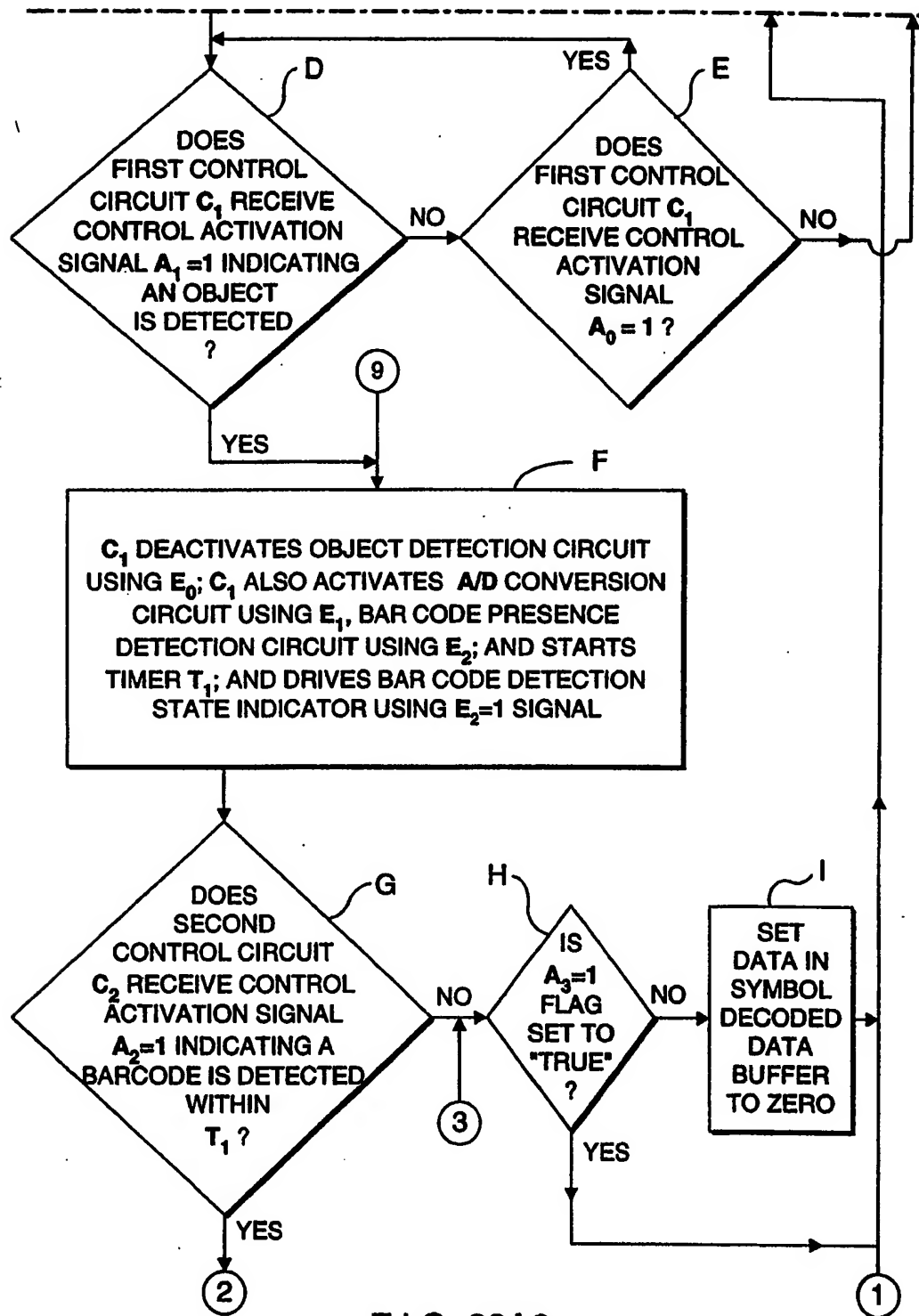
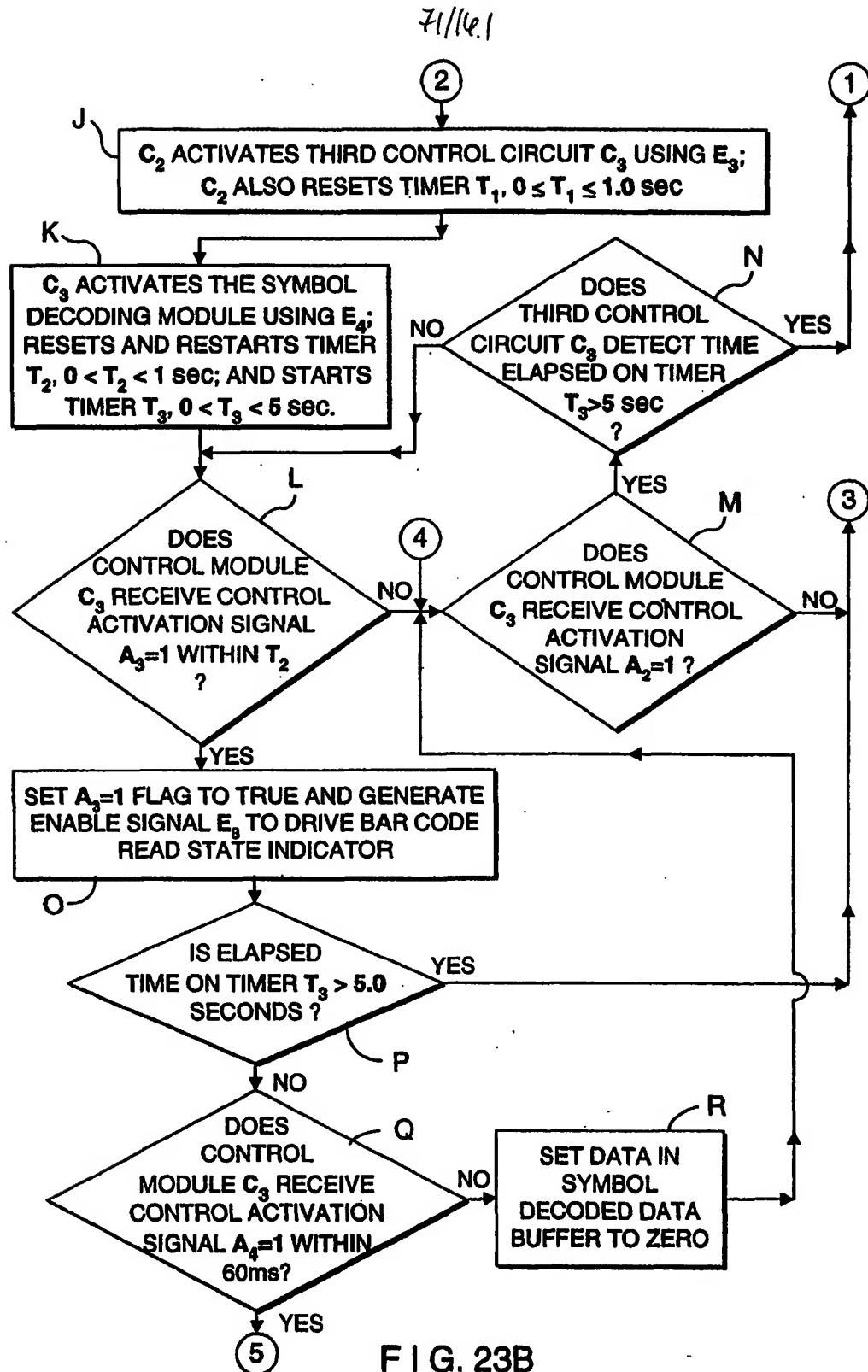


FIG. 23A2



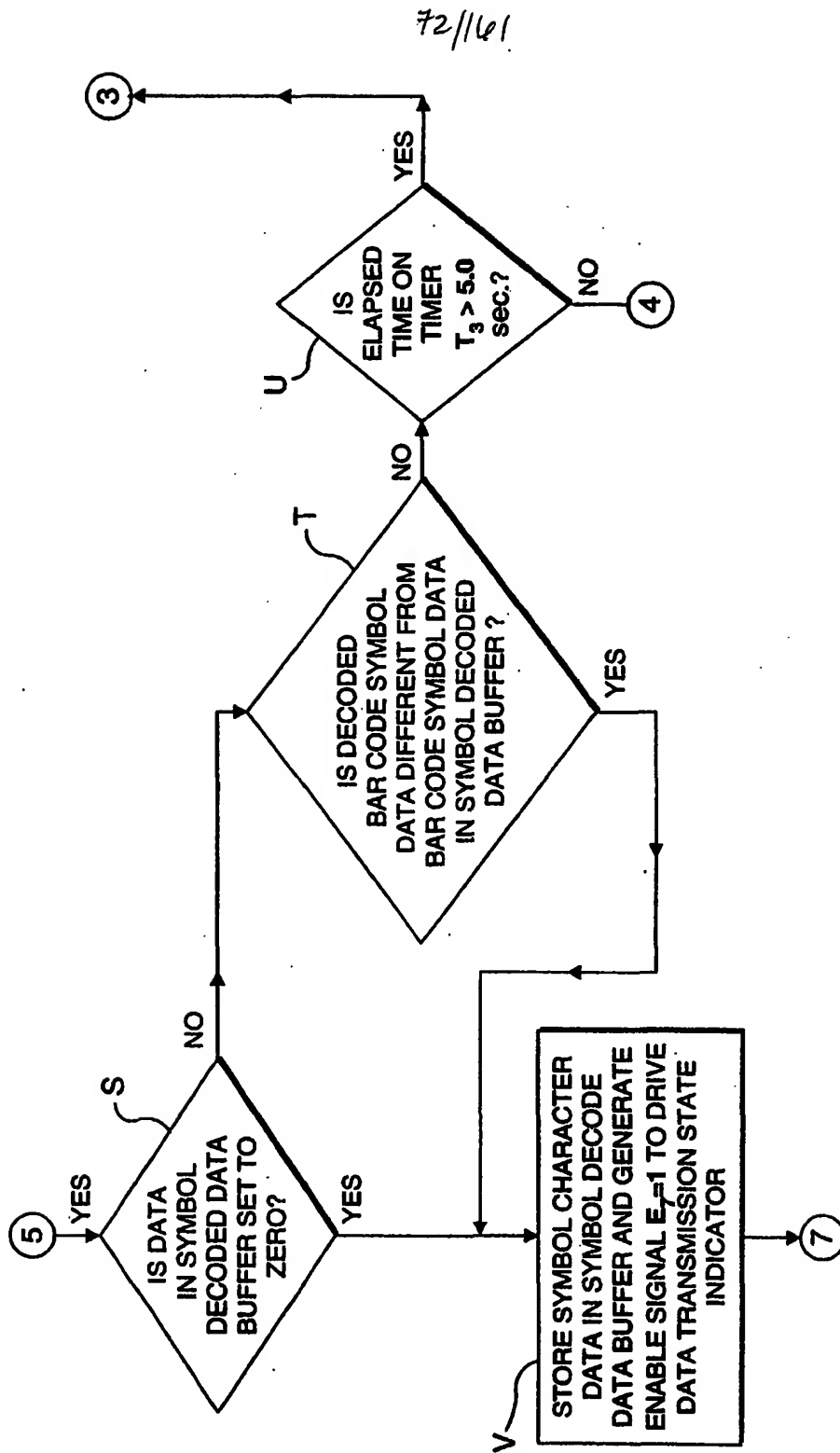


FIG. 23C

73/161

7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

W

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE SETS PACKET NUMBER TO 1 AND INCREMENTS DATA PACKET GROUP NUMBER MODULE COUNTER

X

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

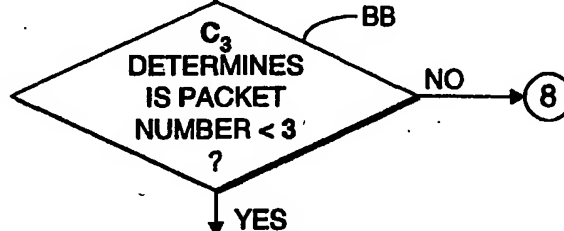
Y

C_3 ACTIVATES DATA PACKET TRANSMISSION CIRCUIT

Z

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE OUTPUTS PACKET TO DATA PACKET TRANSMISSION CIRCUIT

AA



UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE INCREMENTS DATA PACKET GROUP NUMBER

CC

C_3 ALLOWS T_5 TO EXPIRE IN ORDER TO DELAY TRANSMISSION BASED ON LAST TWO DIGITS OF TRANSMITTER NUMBER

DD

FIG. 23D

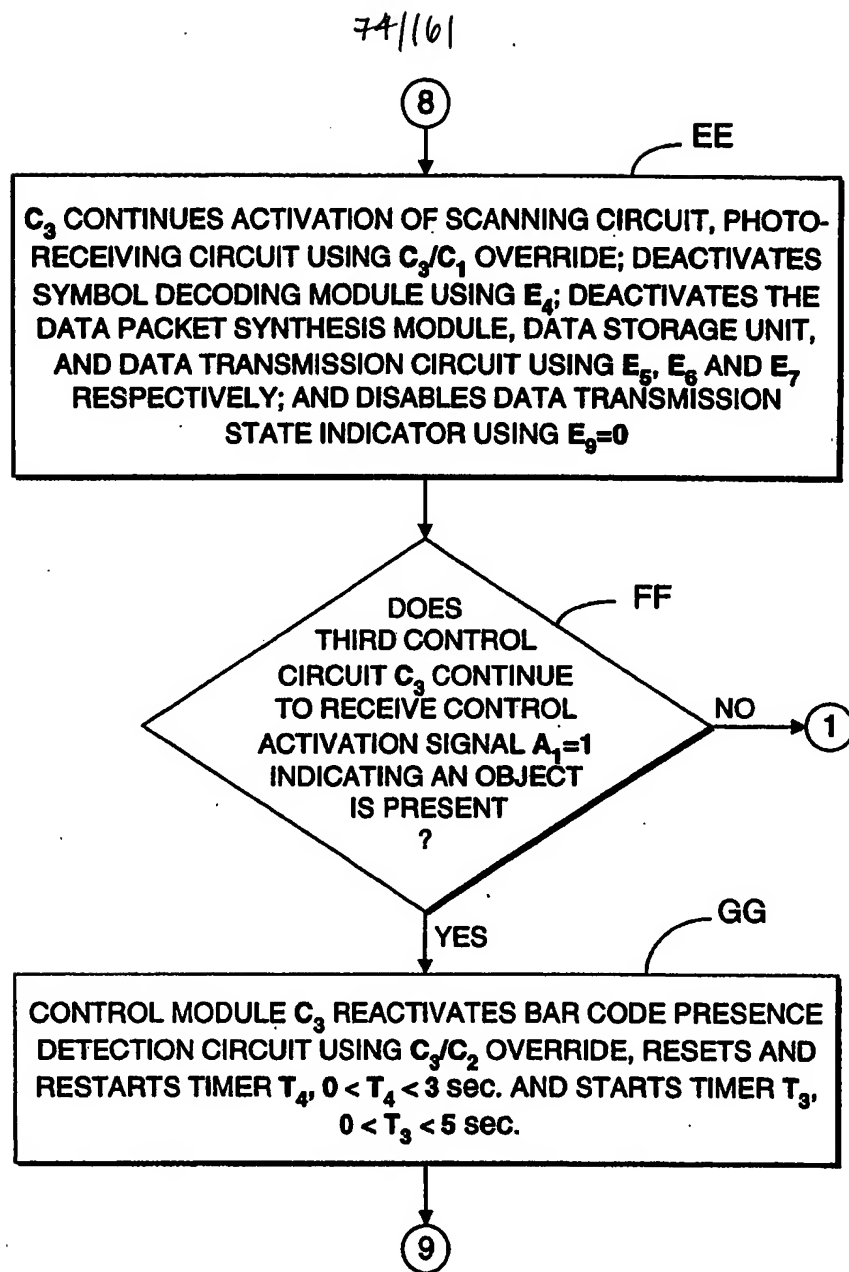


FIG. 23E

75/161

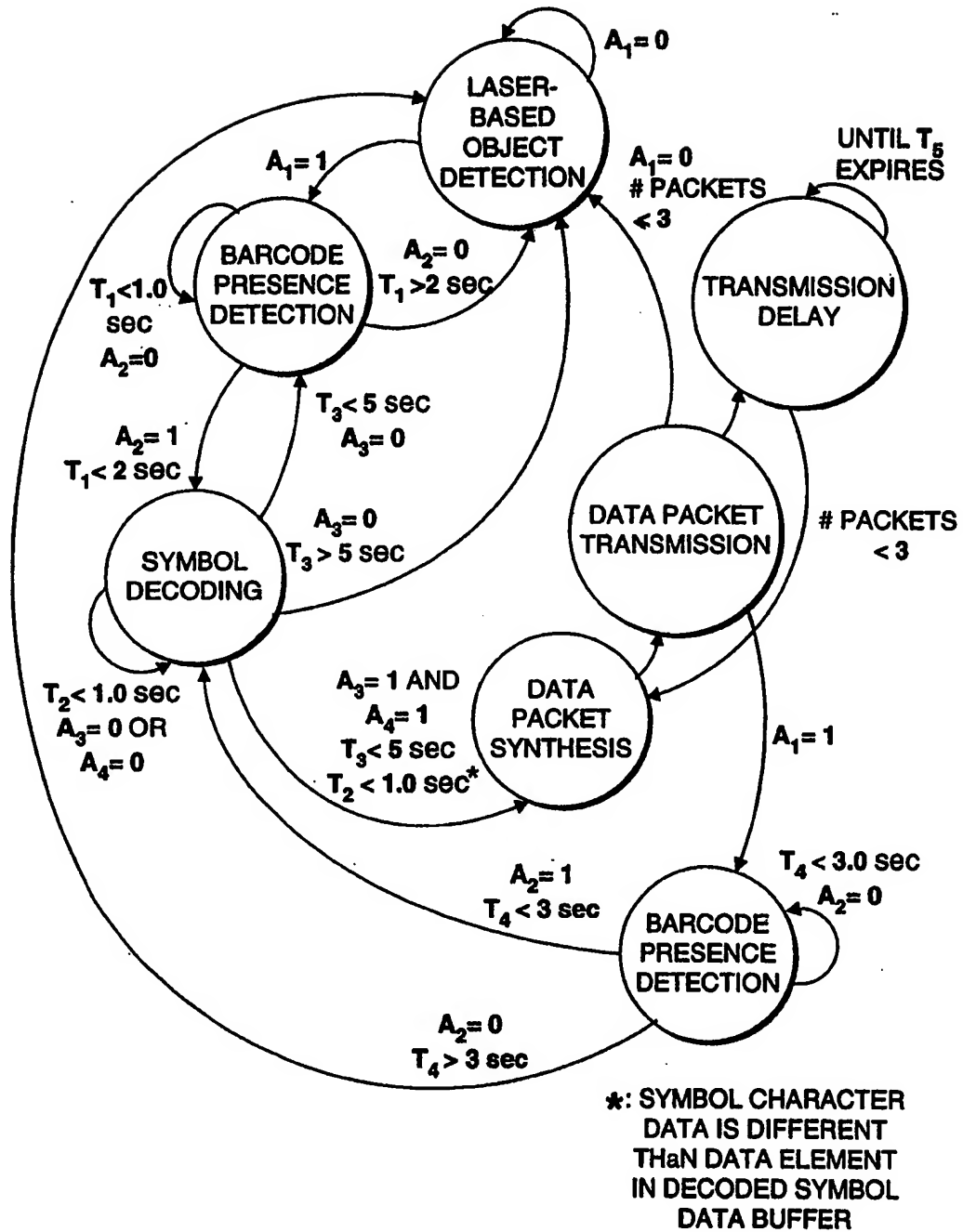


FIG. 24

76/161

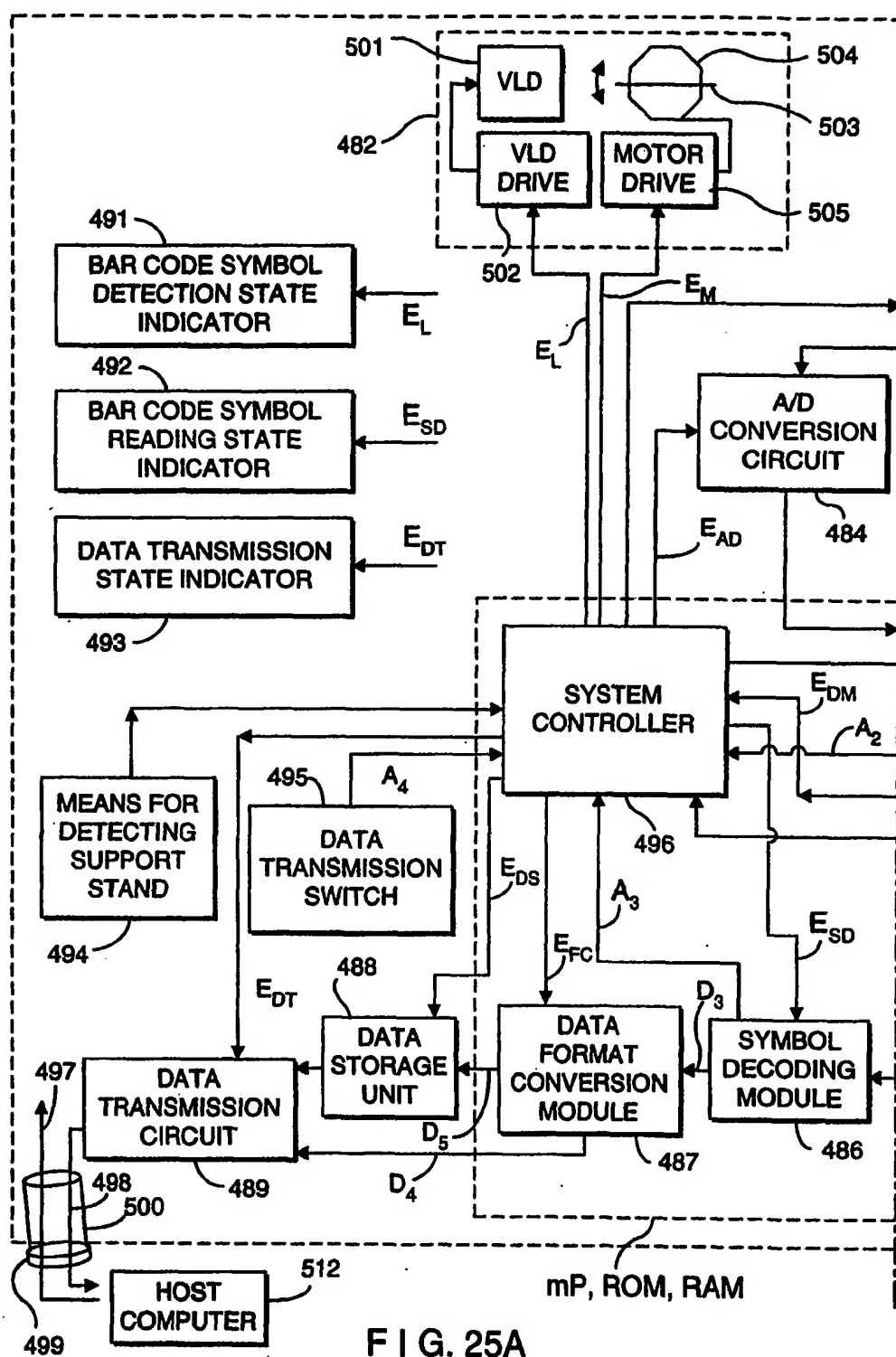


FIG. 25A

77/161

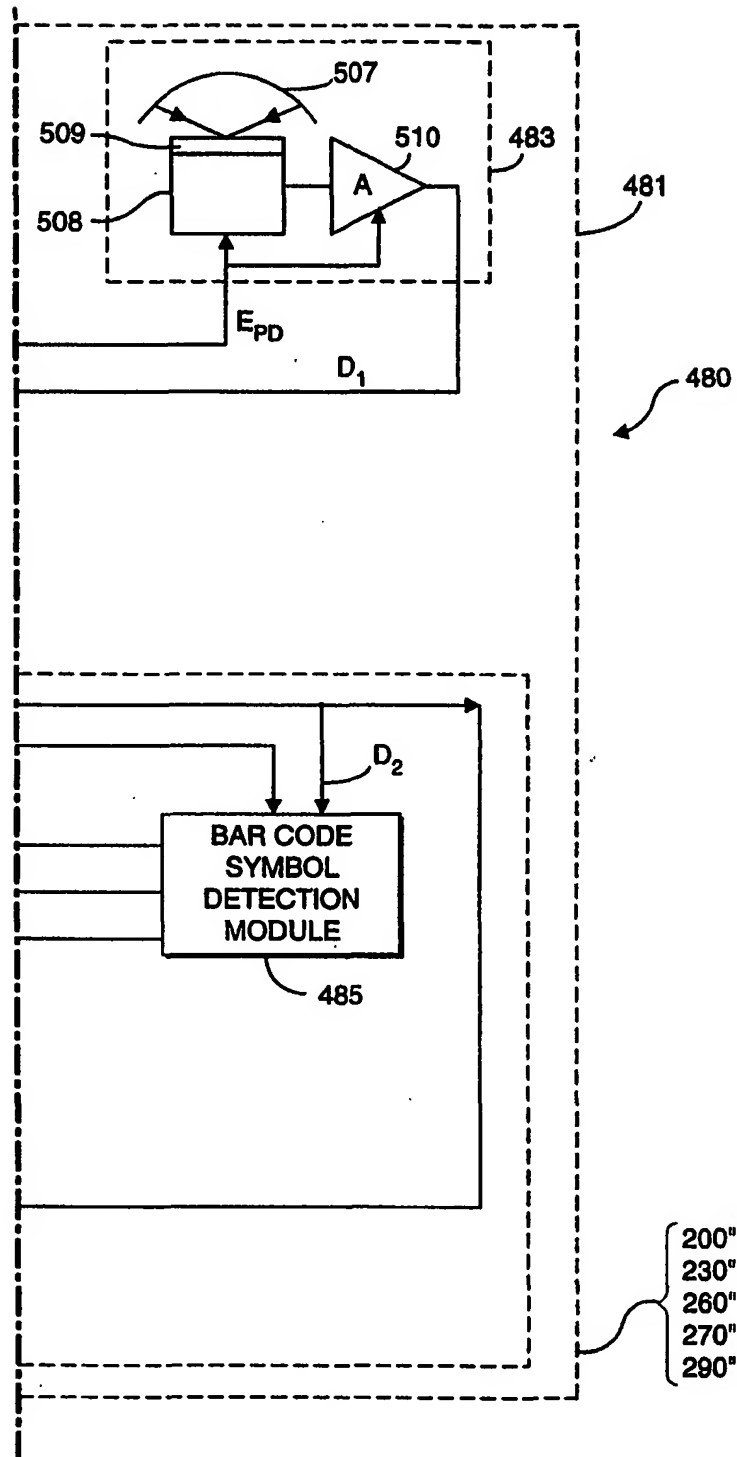


FIG. 25B

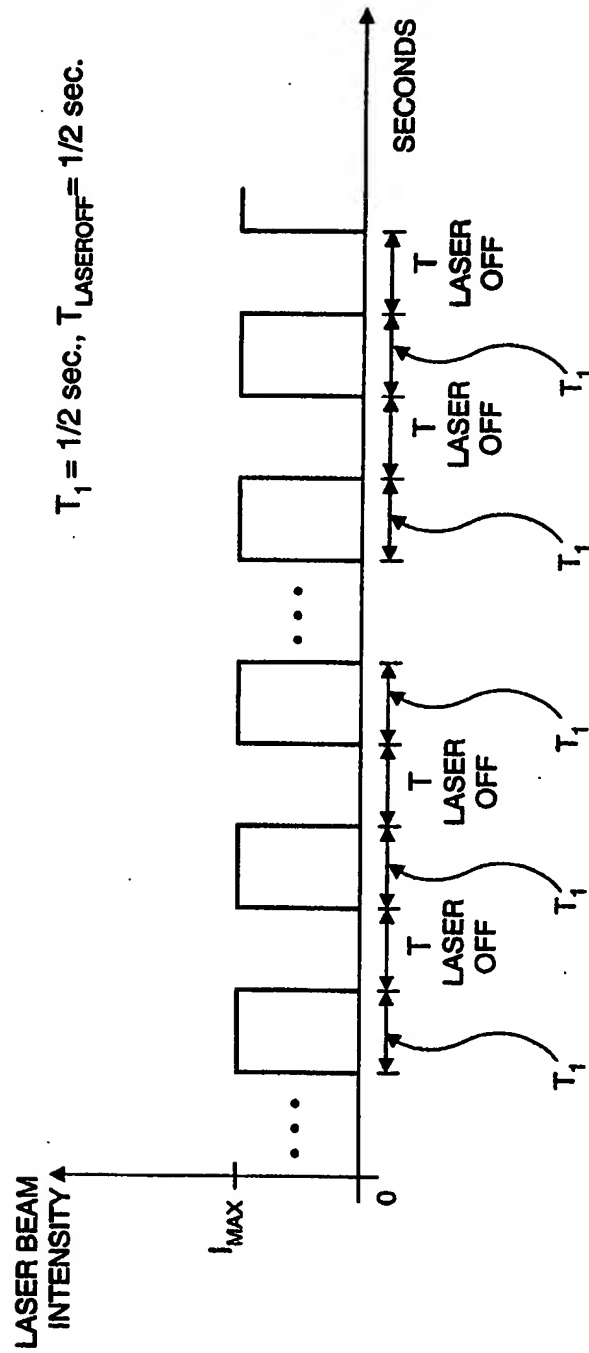
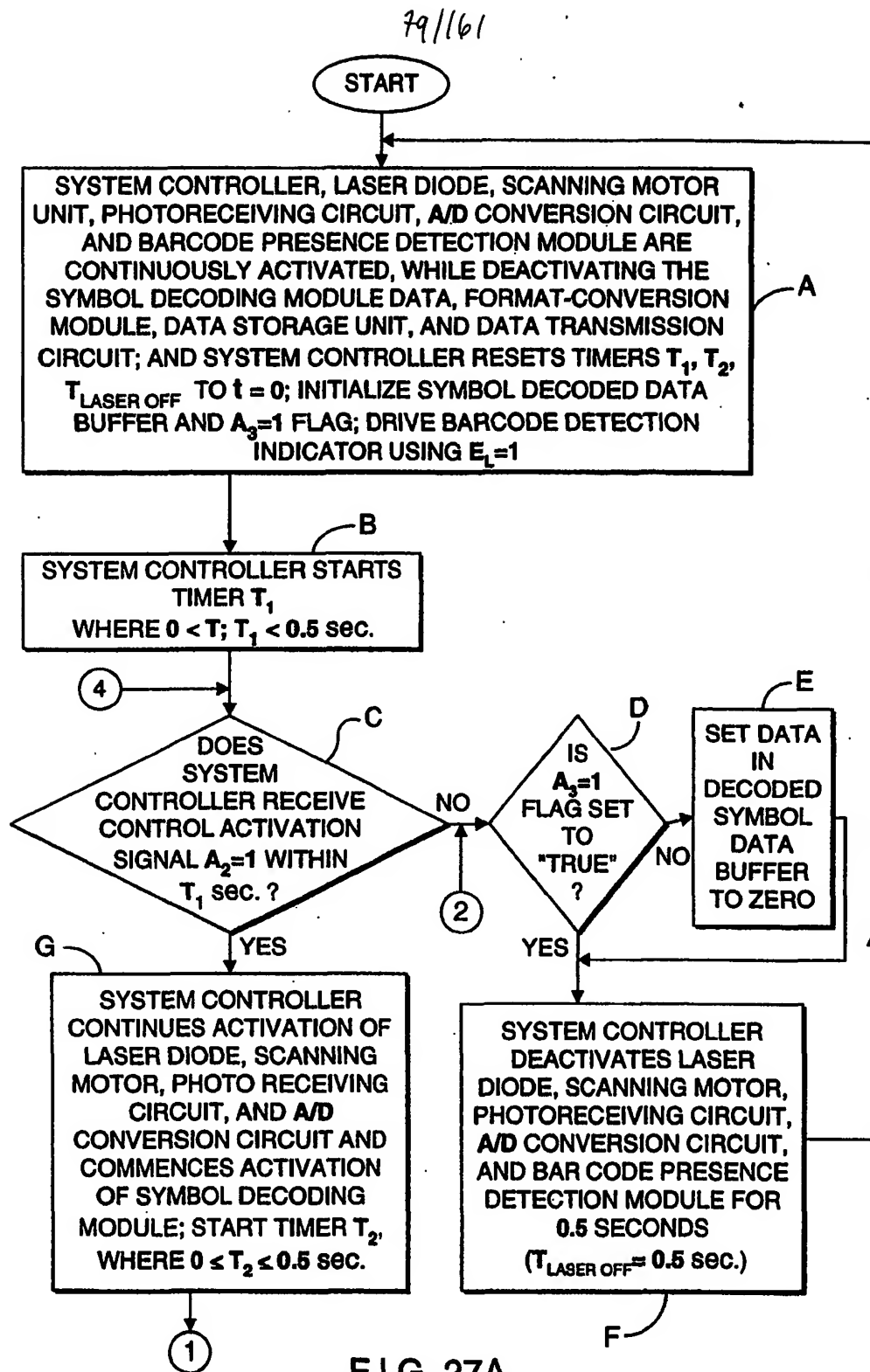


FIG. 26

78/161



80/161

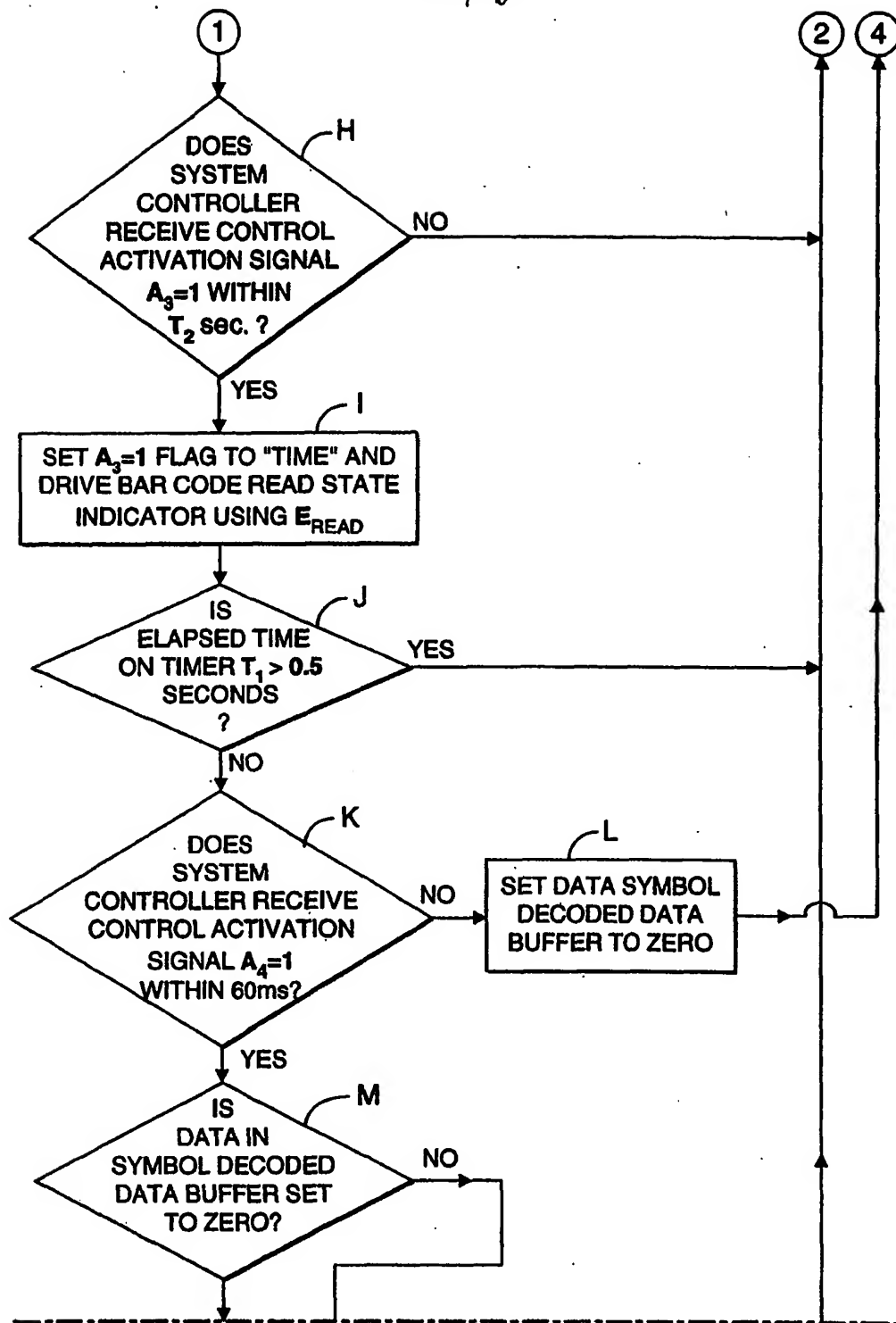


FIG. 27B1

81/161

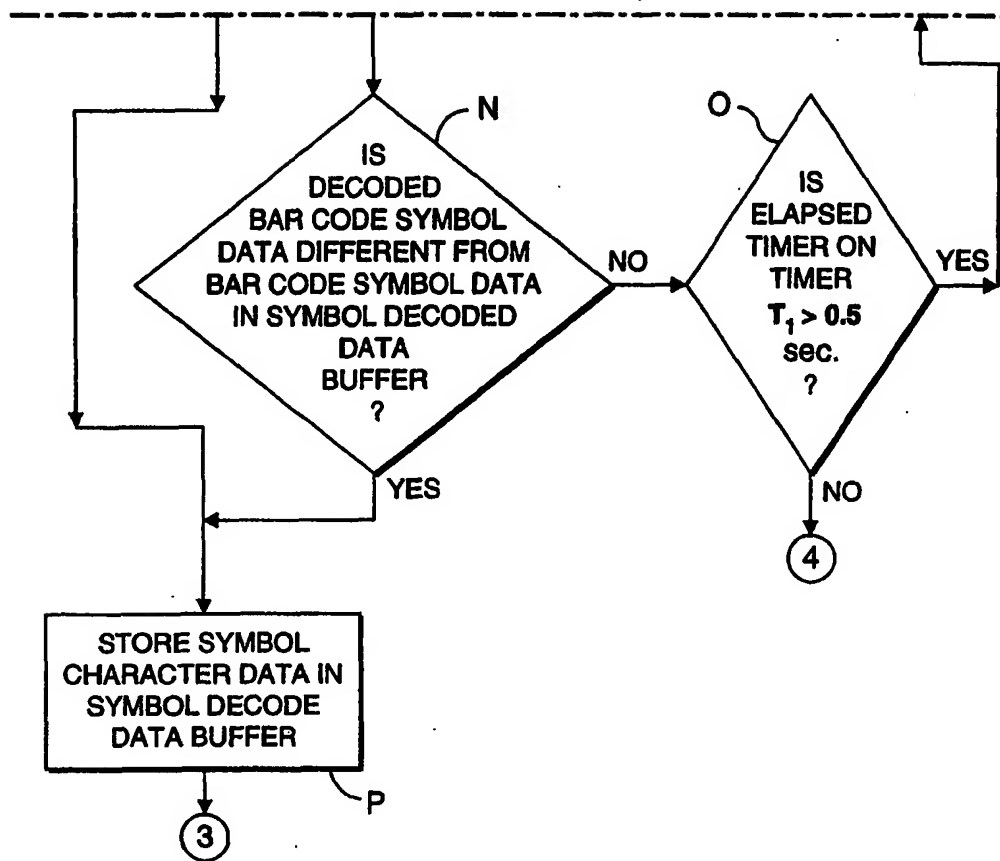


FIG. 27B2

82/101

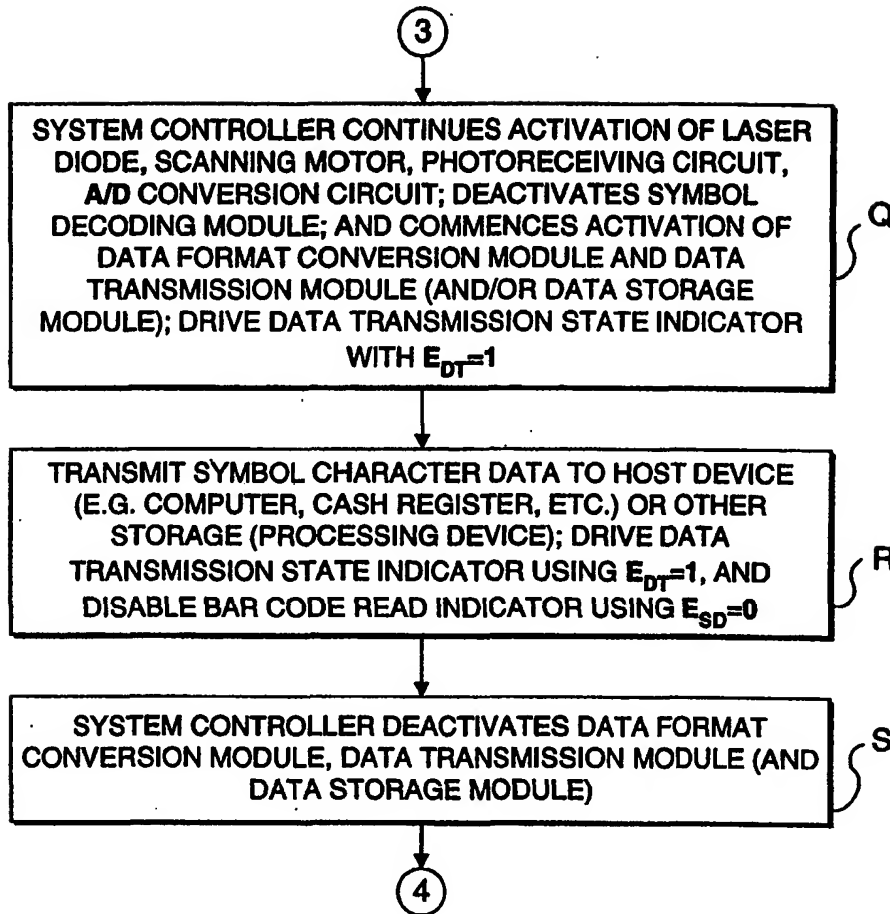


FIG. 27C

03/161

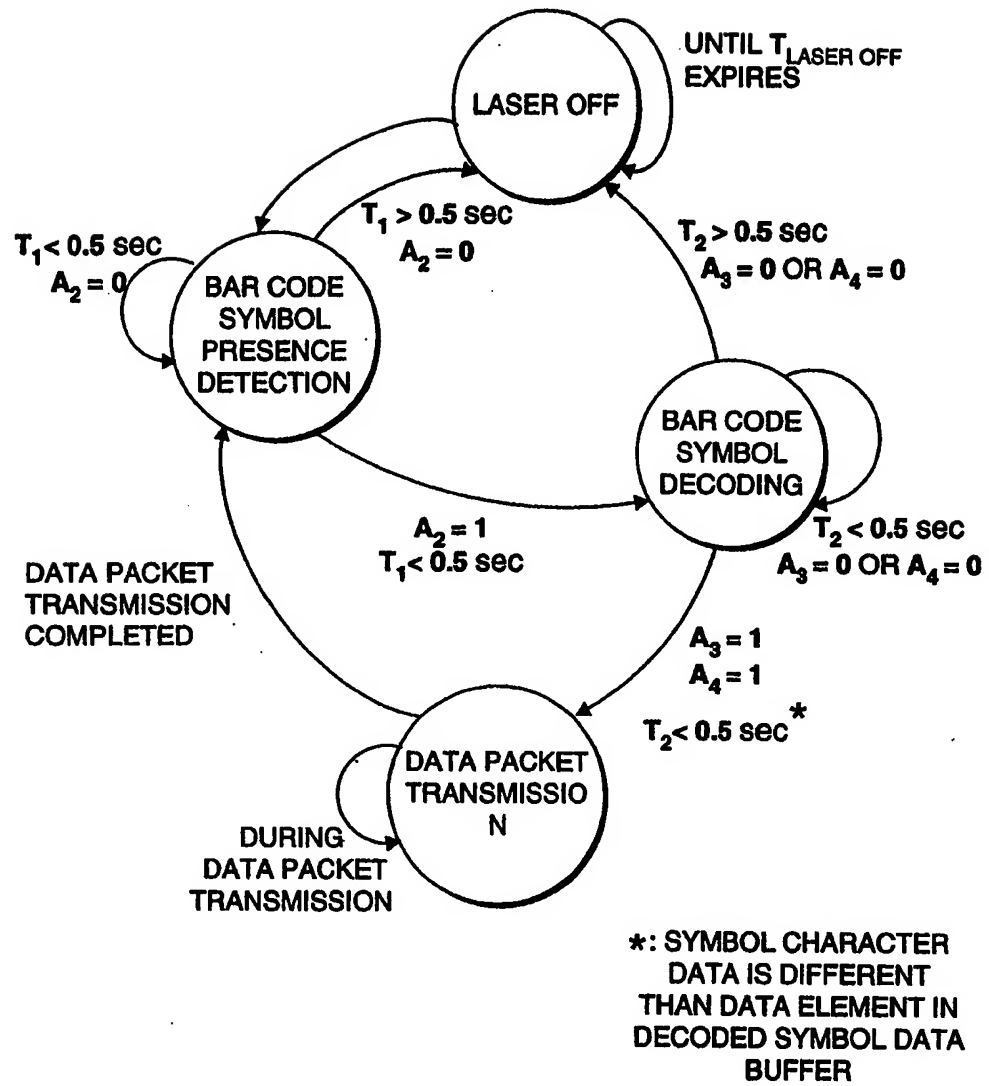
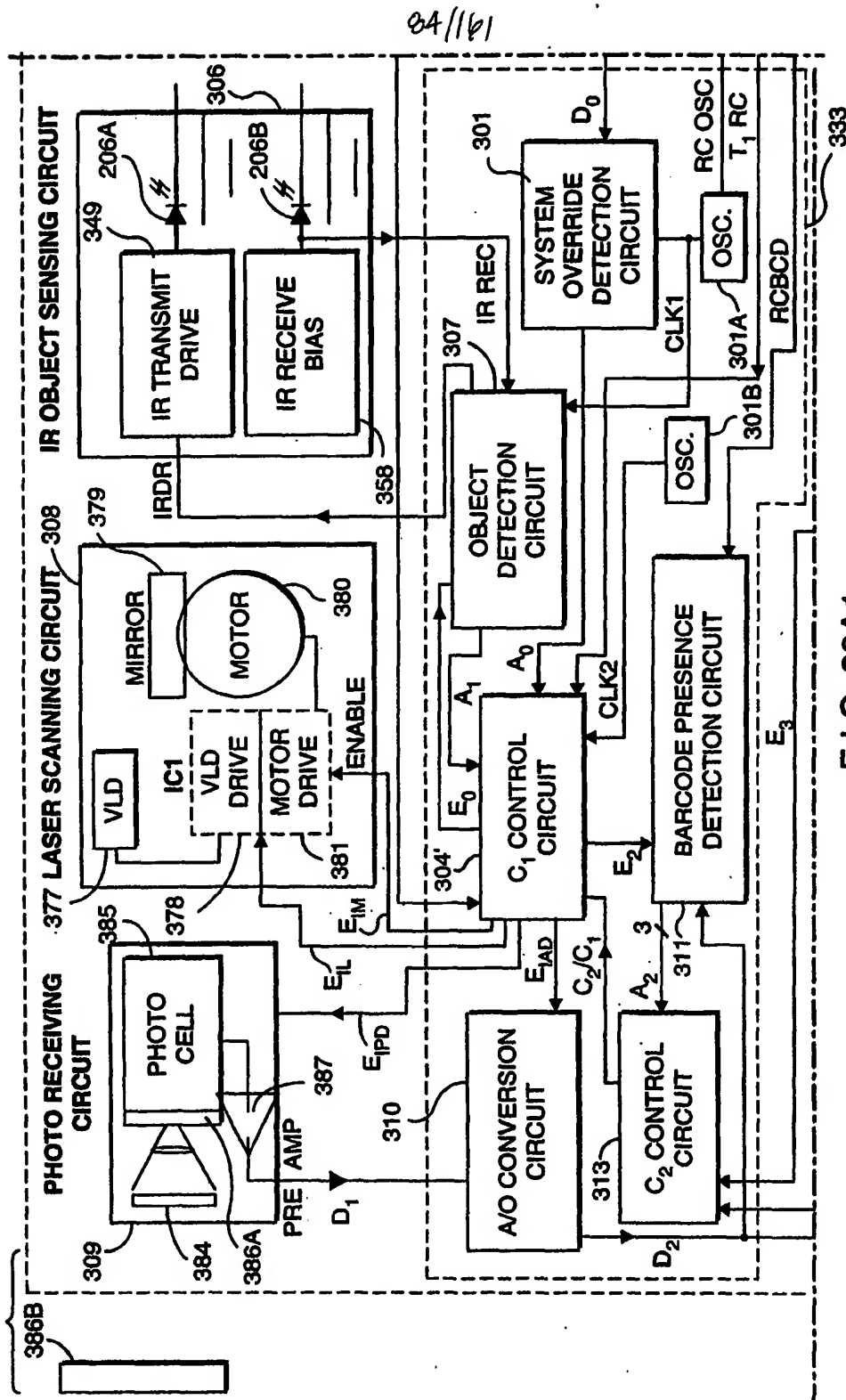


FIG. 28



85/161

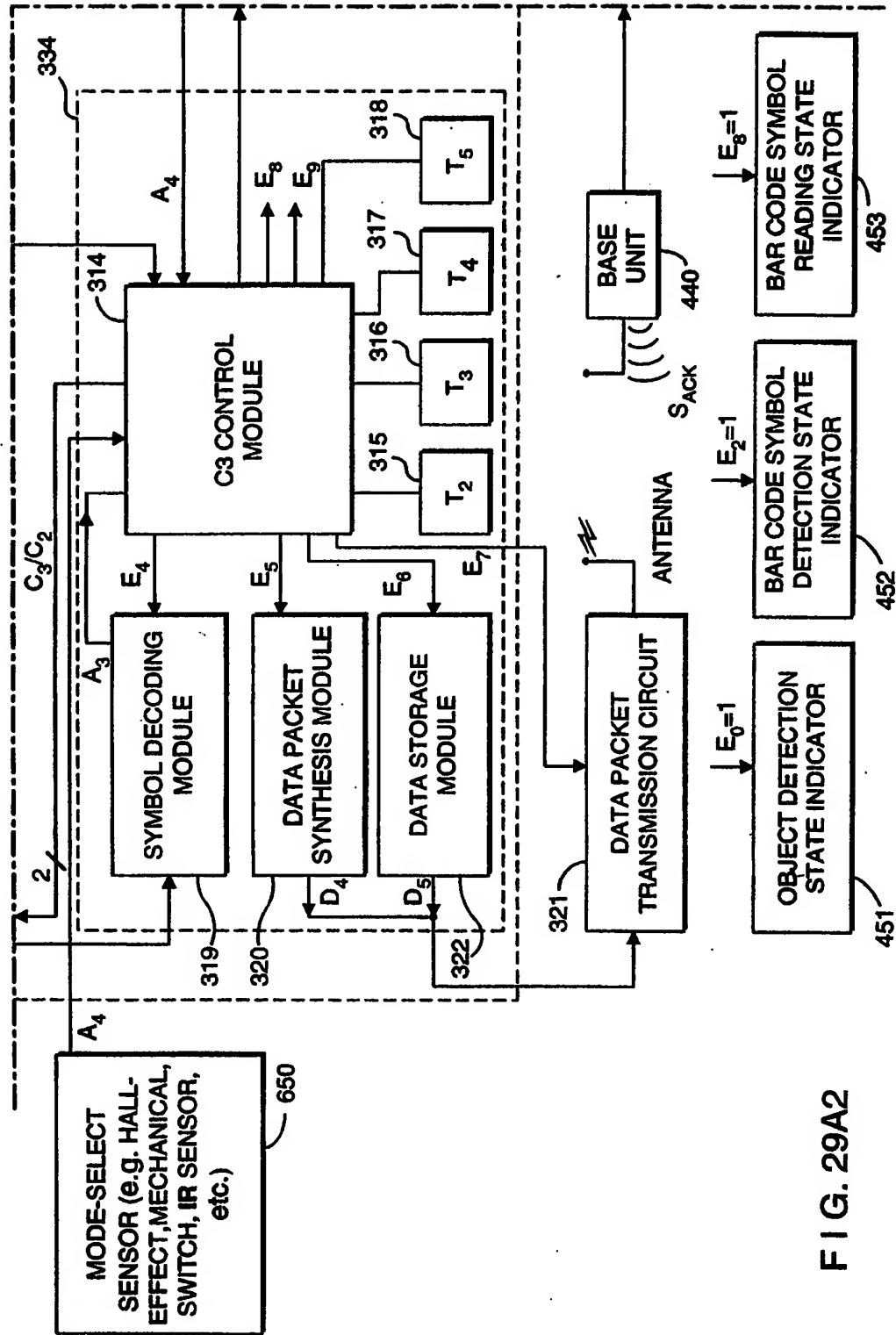


FIG. 29A2

86/161

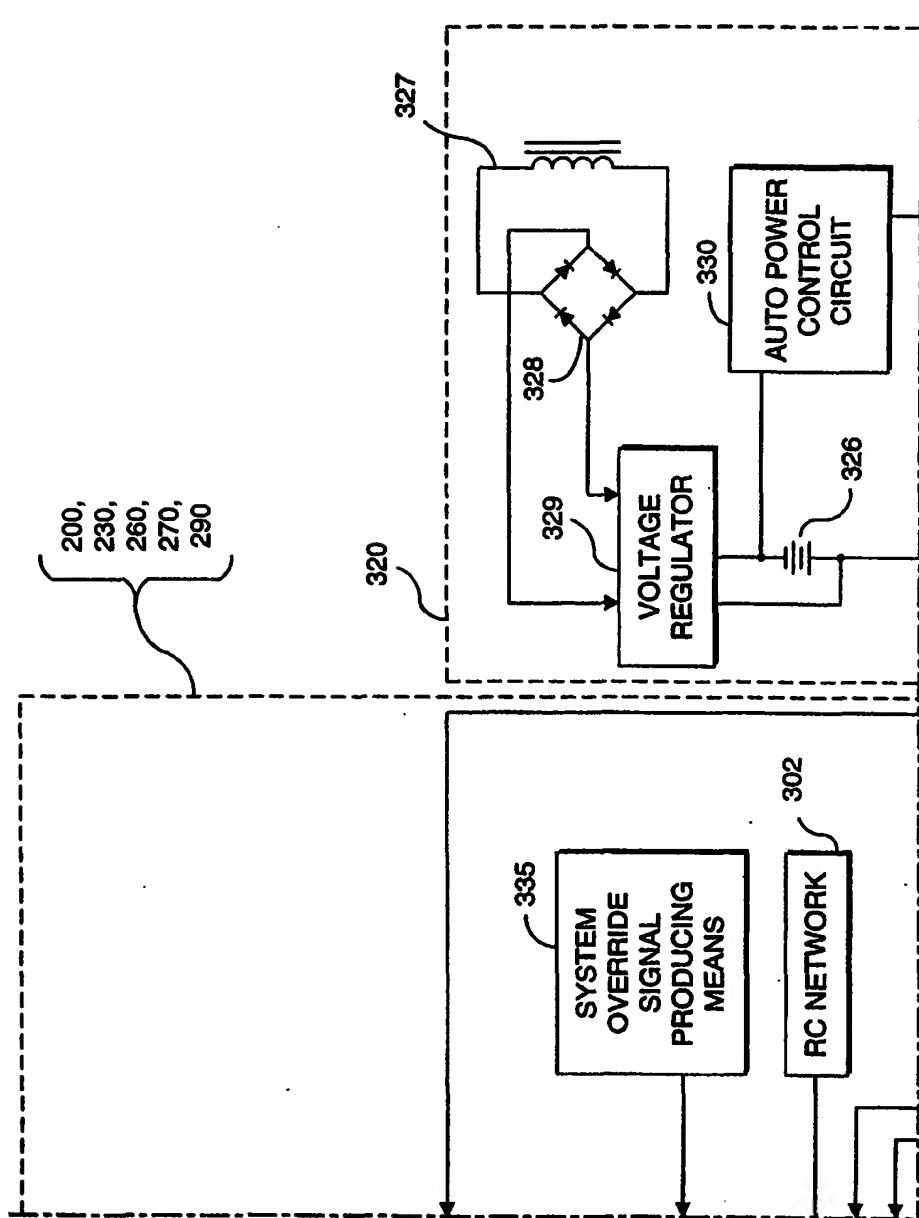
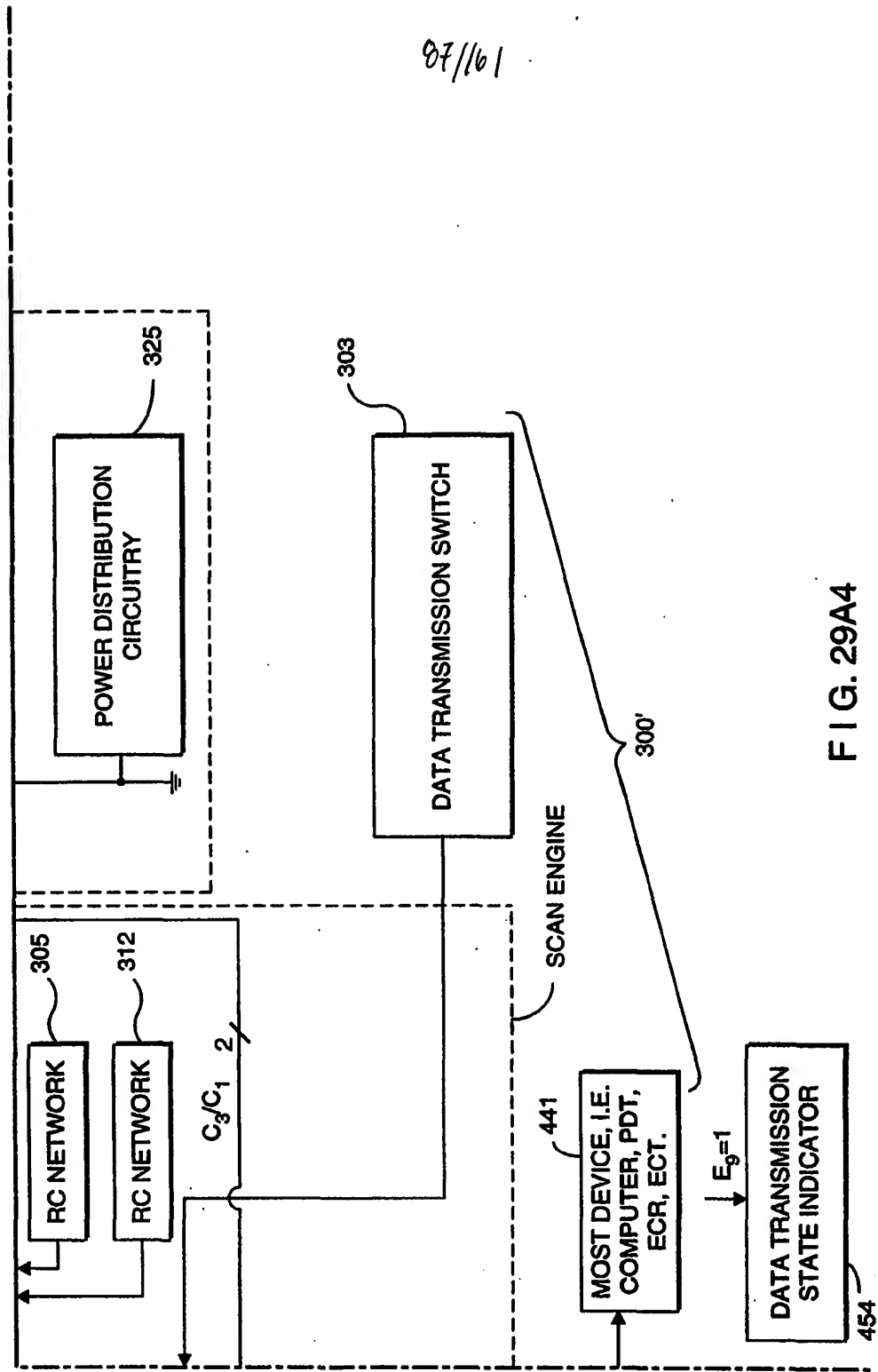


FIG. 29A3



88/161

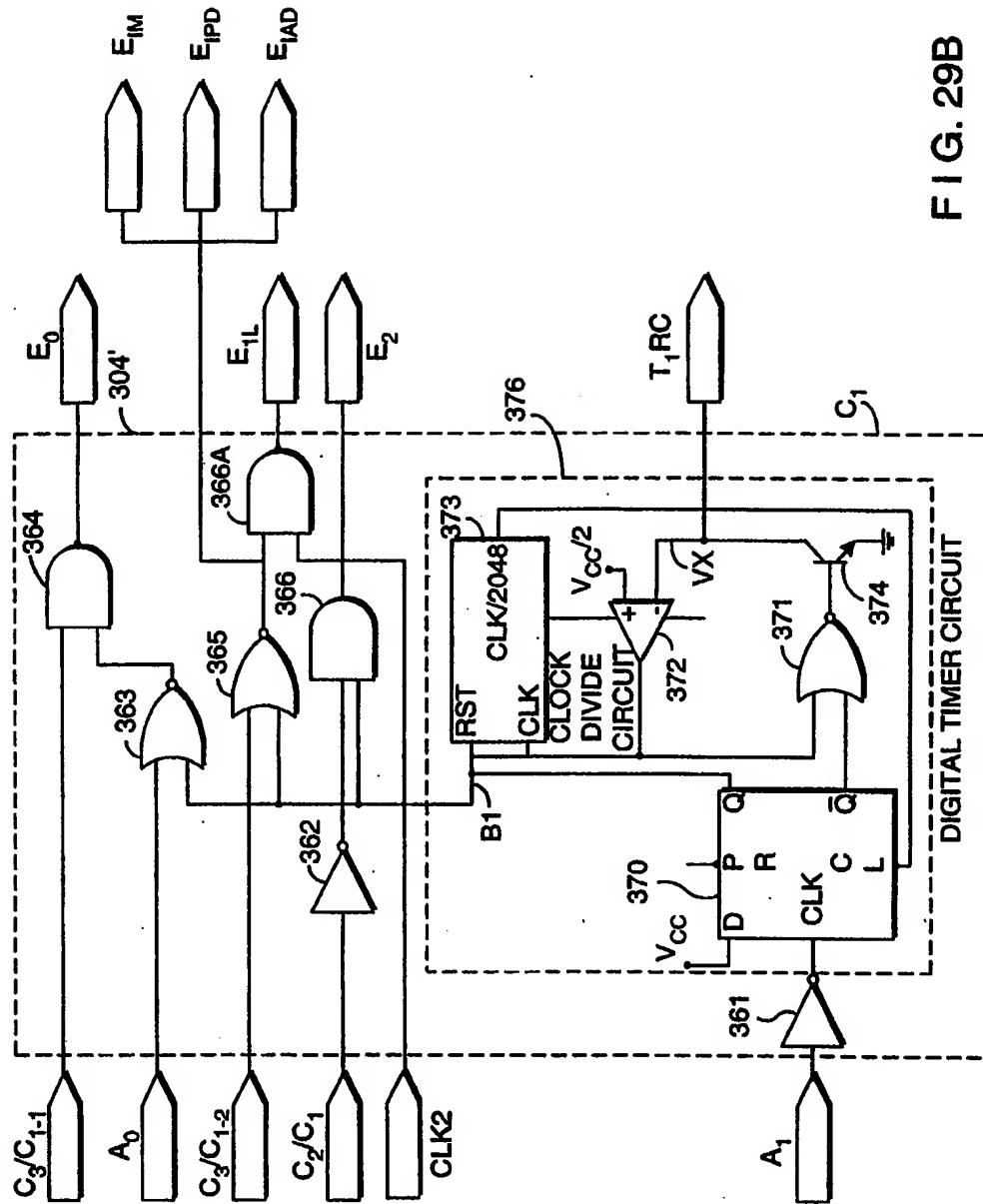


FIG. 29B

89/161

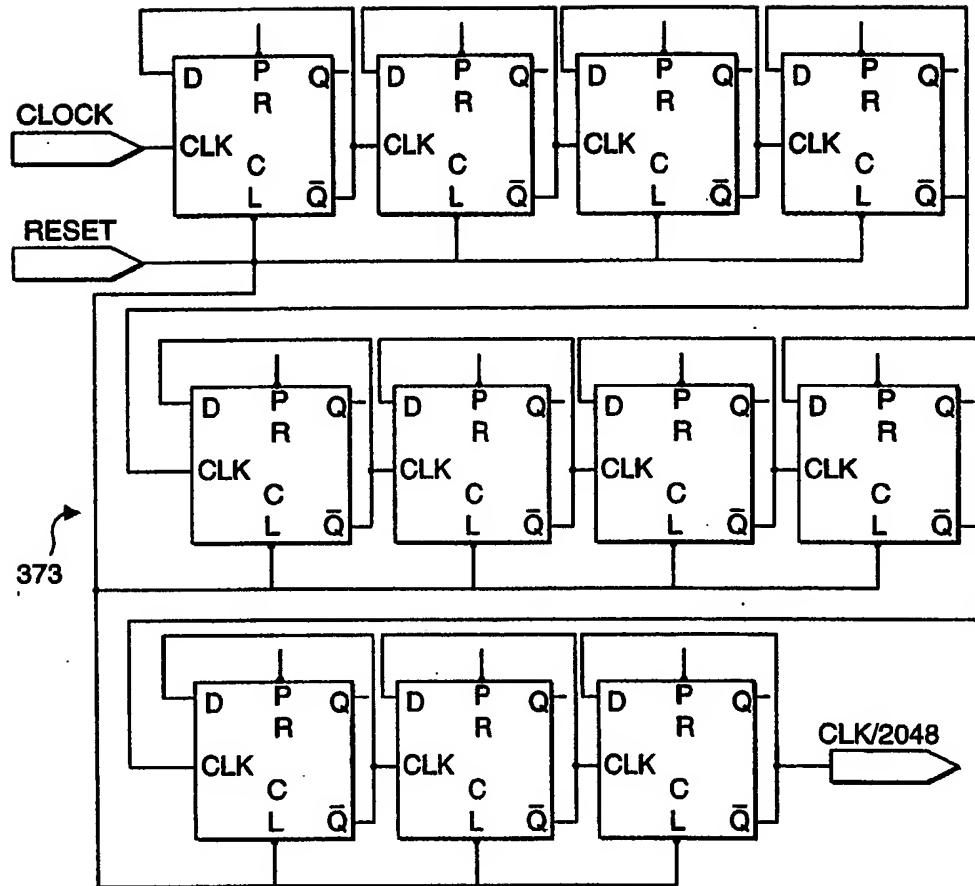


FIG. 29C

90/161

$$\left\{ \begin{array}{l} E_0 = \overline{(B1 + A_0) (C_3 / C_{1-1})} \\ E_{IM} = E_{IPD} = E_{IAD} = \overline{(C_3 / C_{1-2}) + B1} \\ E_L = \overline{[(C_3 / C_{1-1}) + B1] [B2]} \\ E_2 = \overline{(C_2 / C_1) (B1)} \end{array} \right.$$

FIG. 29D

91/161

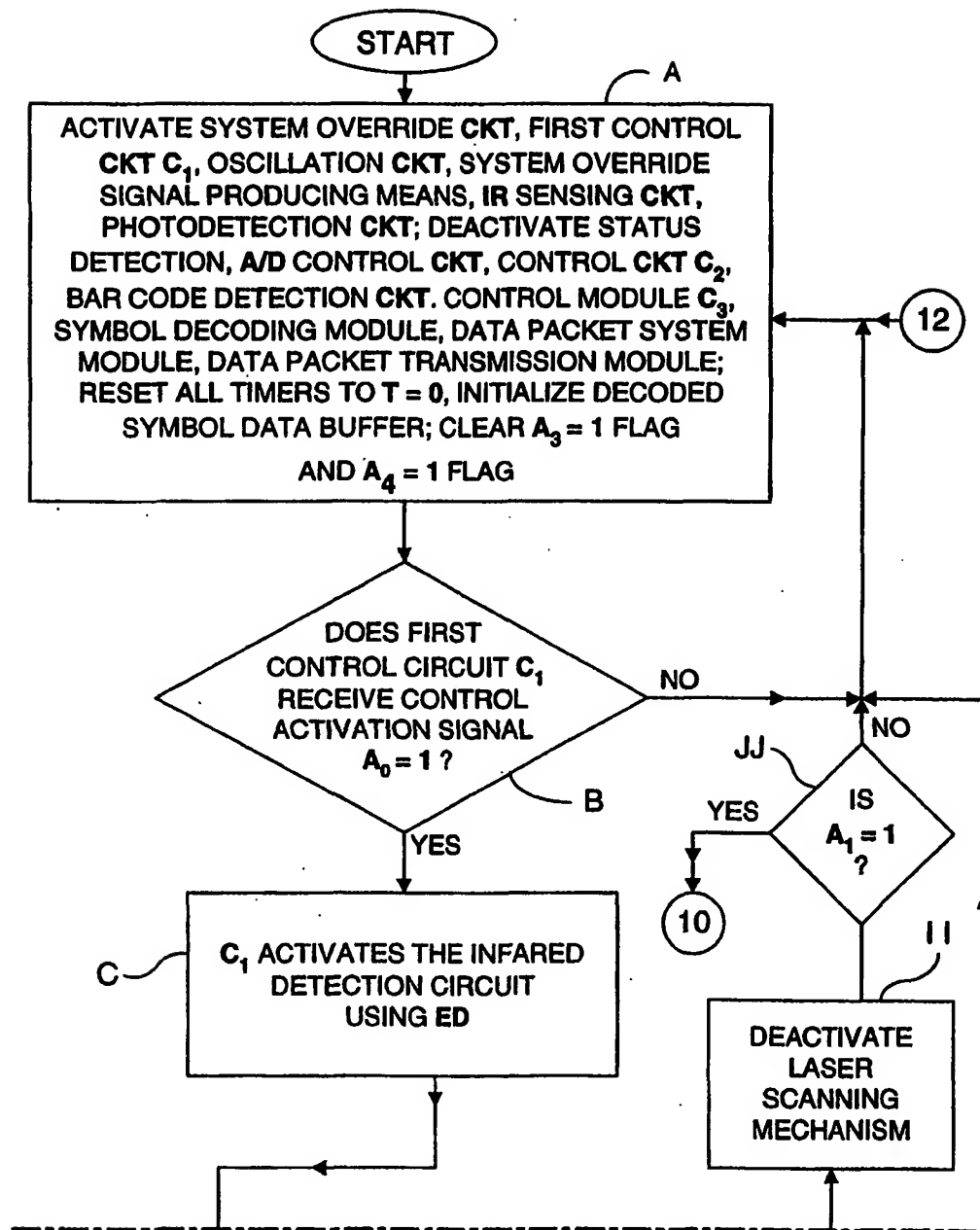
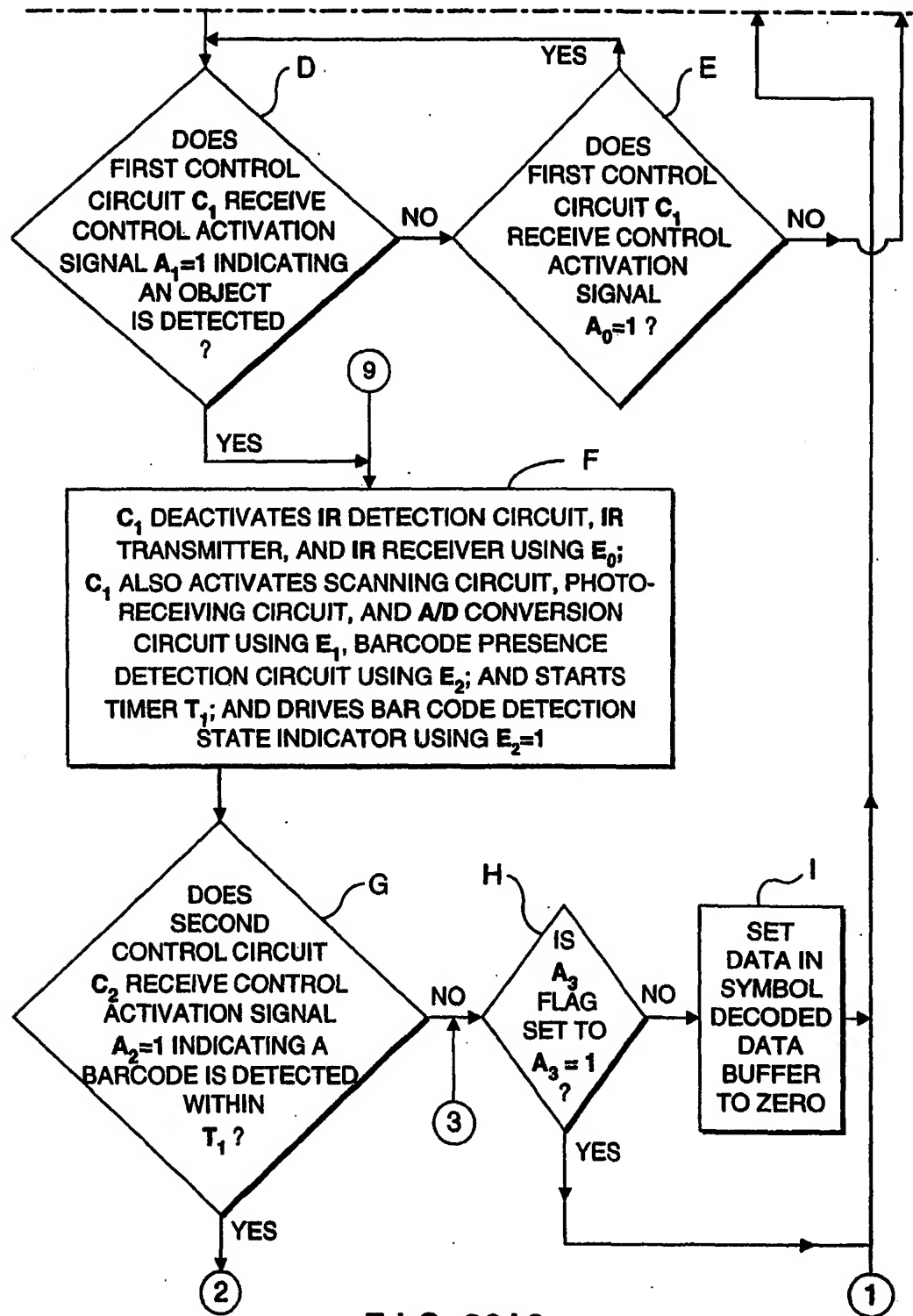
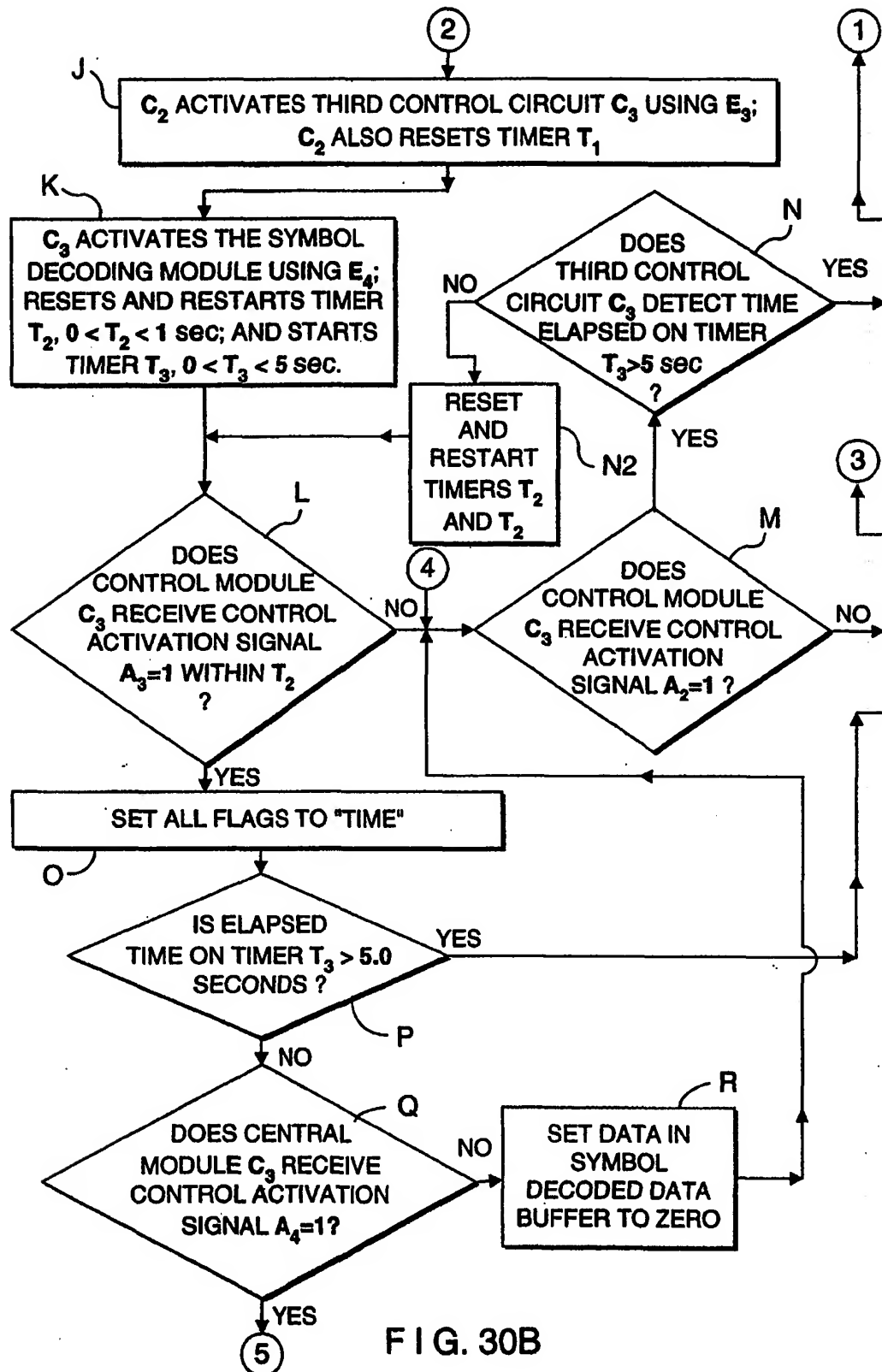


FIG. 30A1





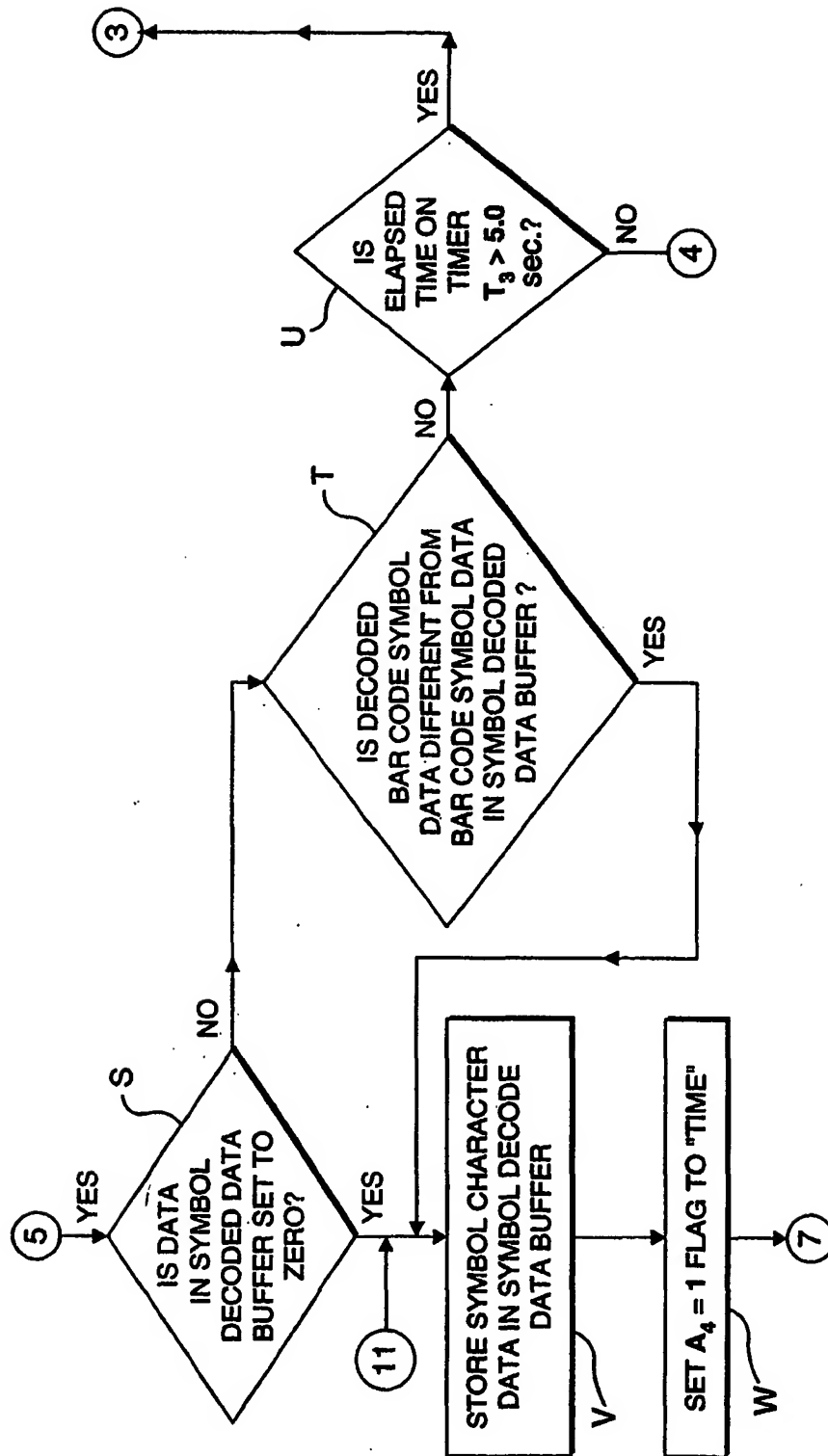


FIG. 30C

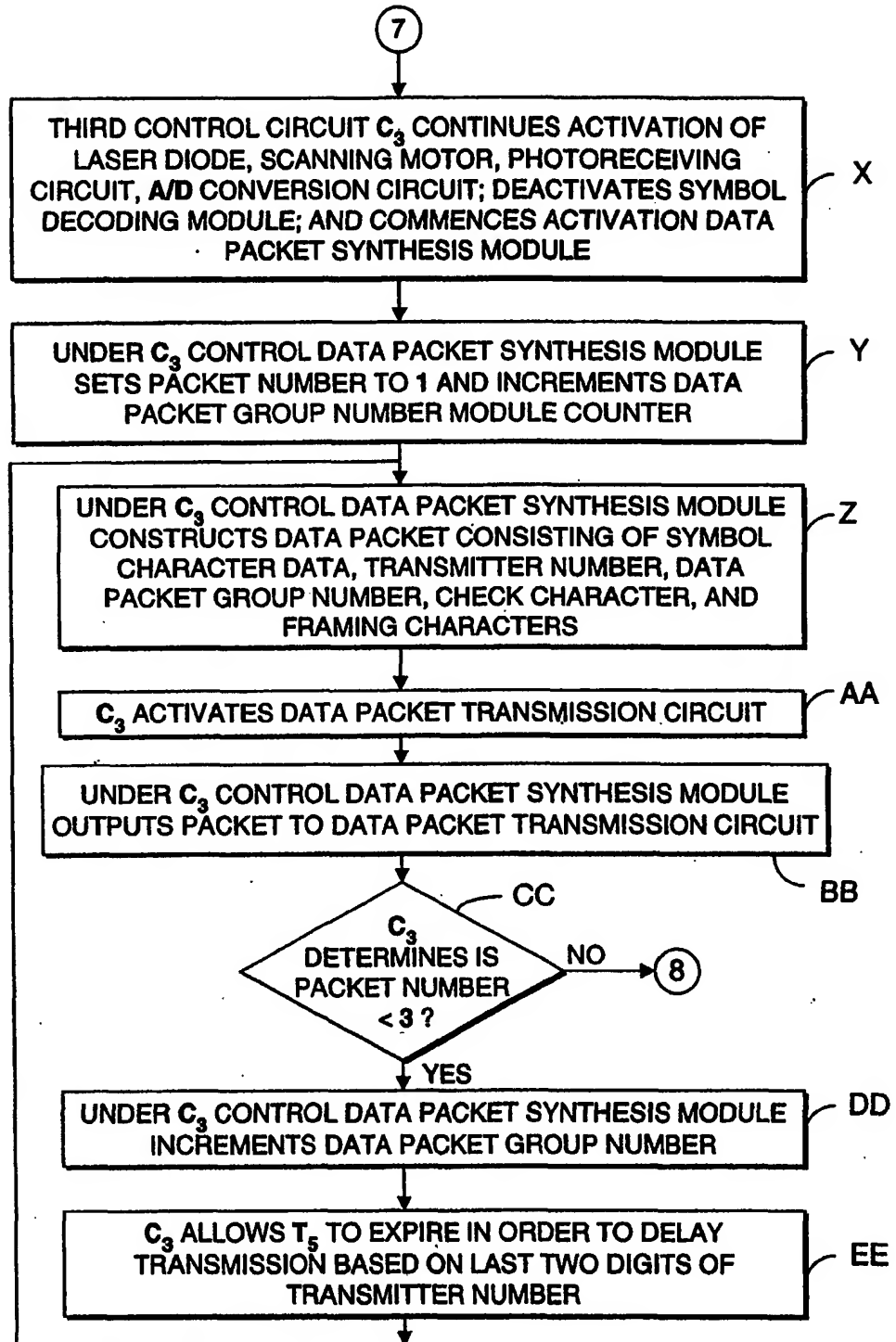


FIG. 30D

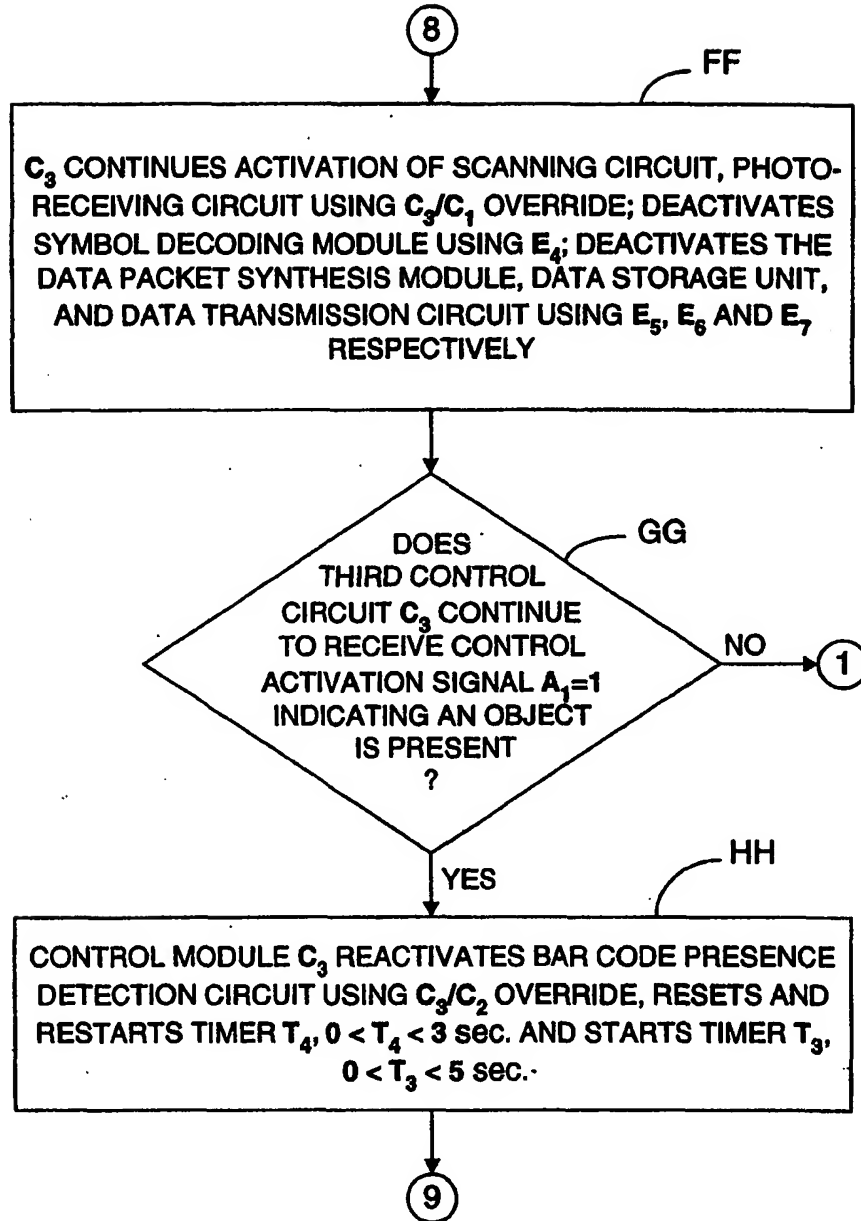


FIG. 30E

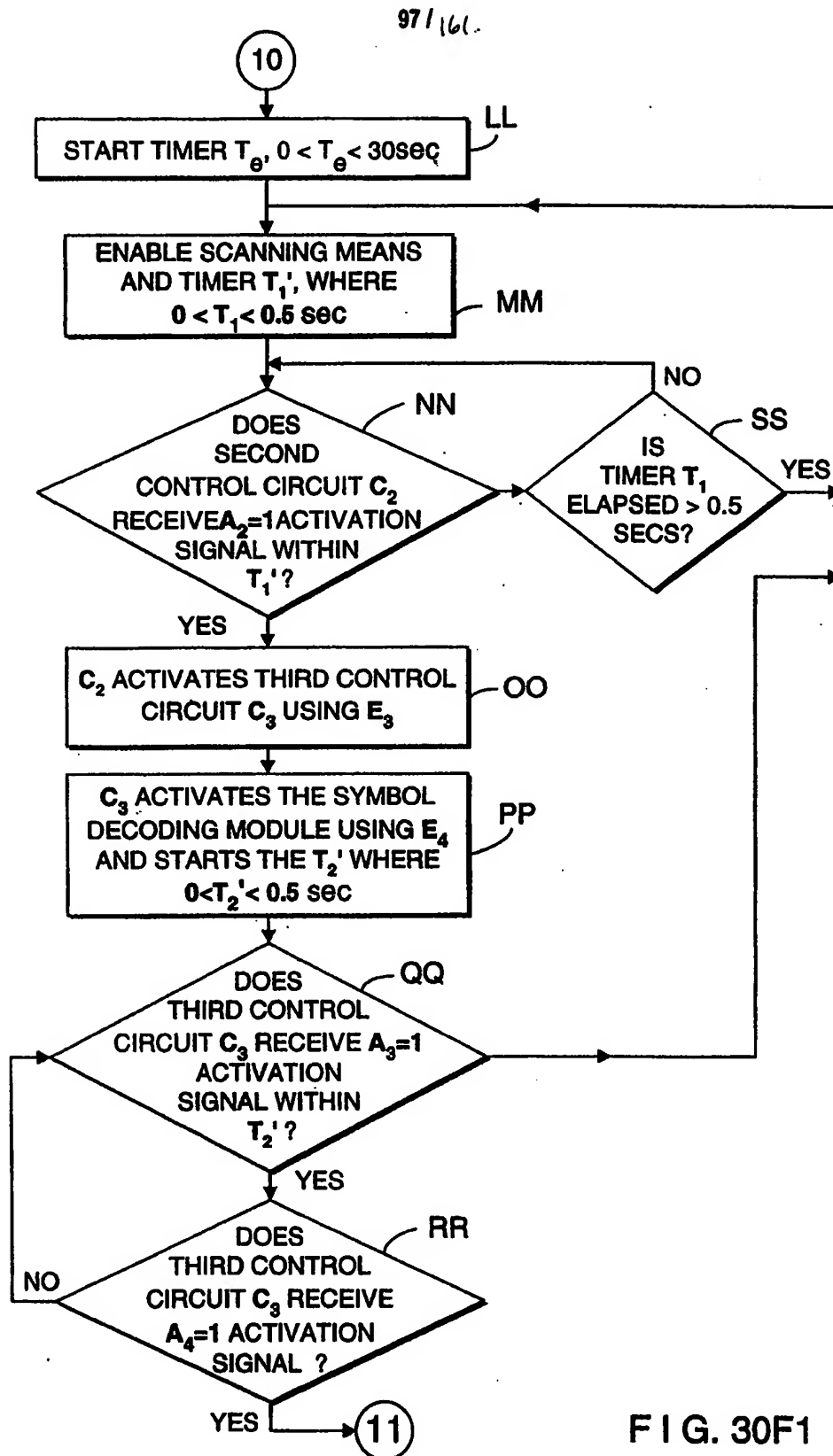
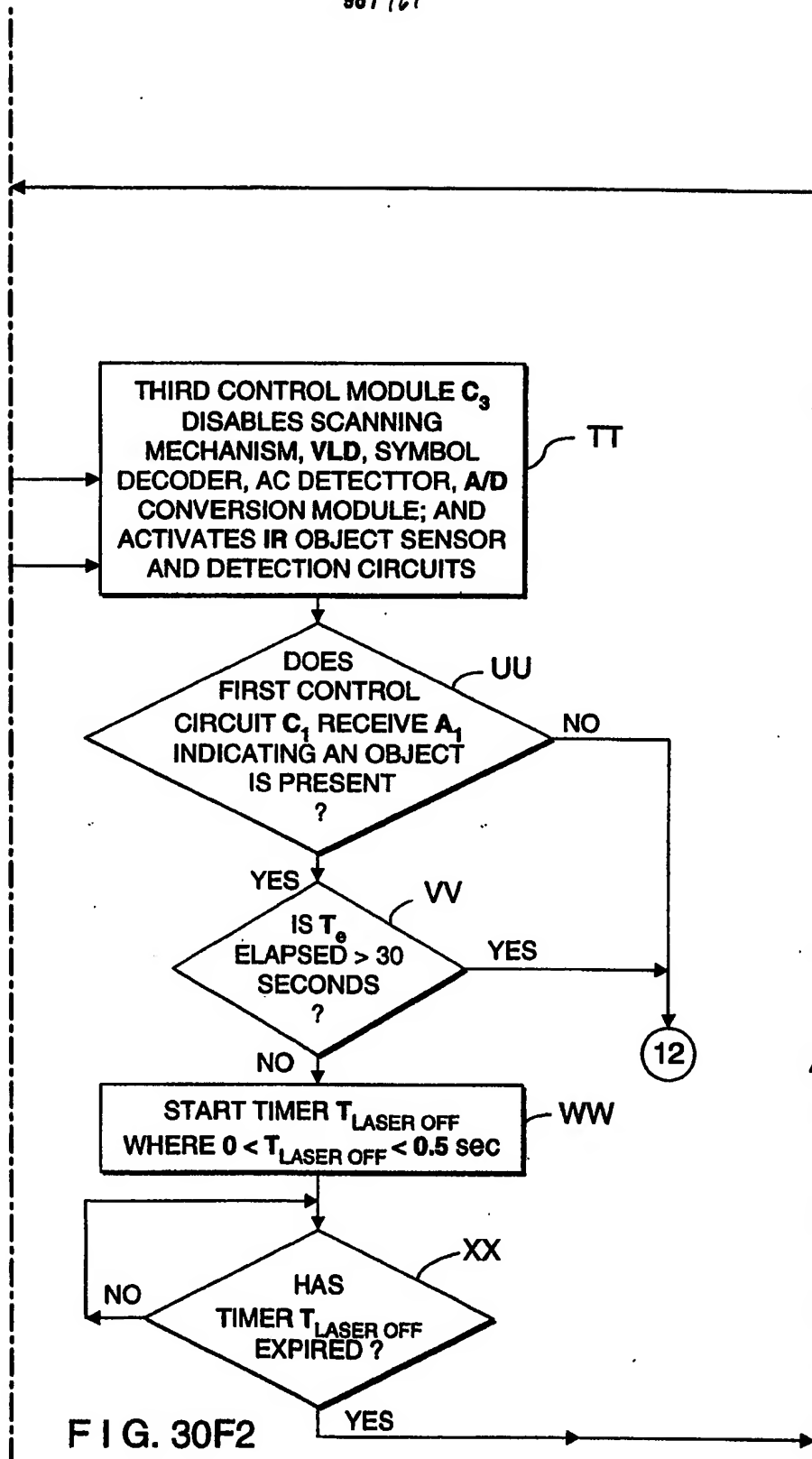


FIG. 30F1



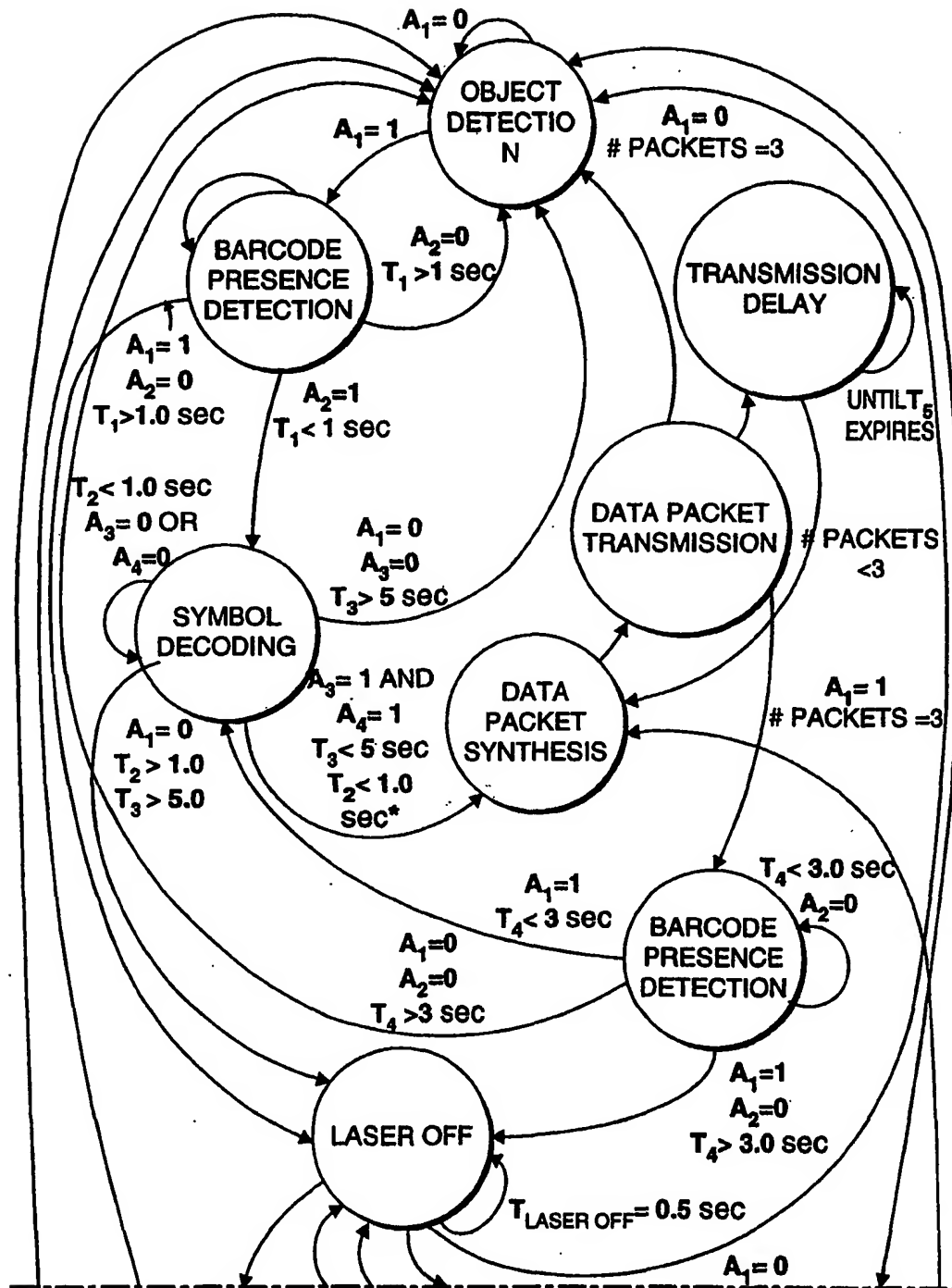
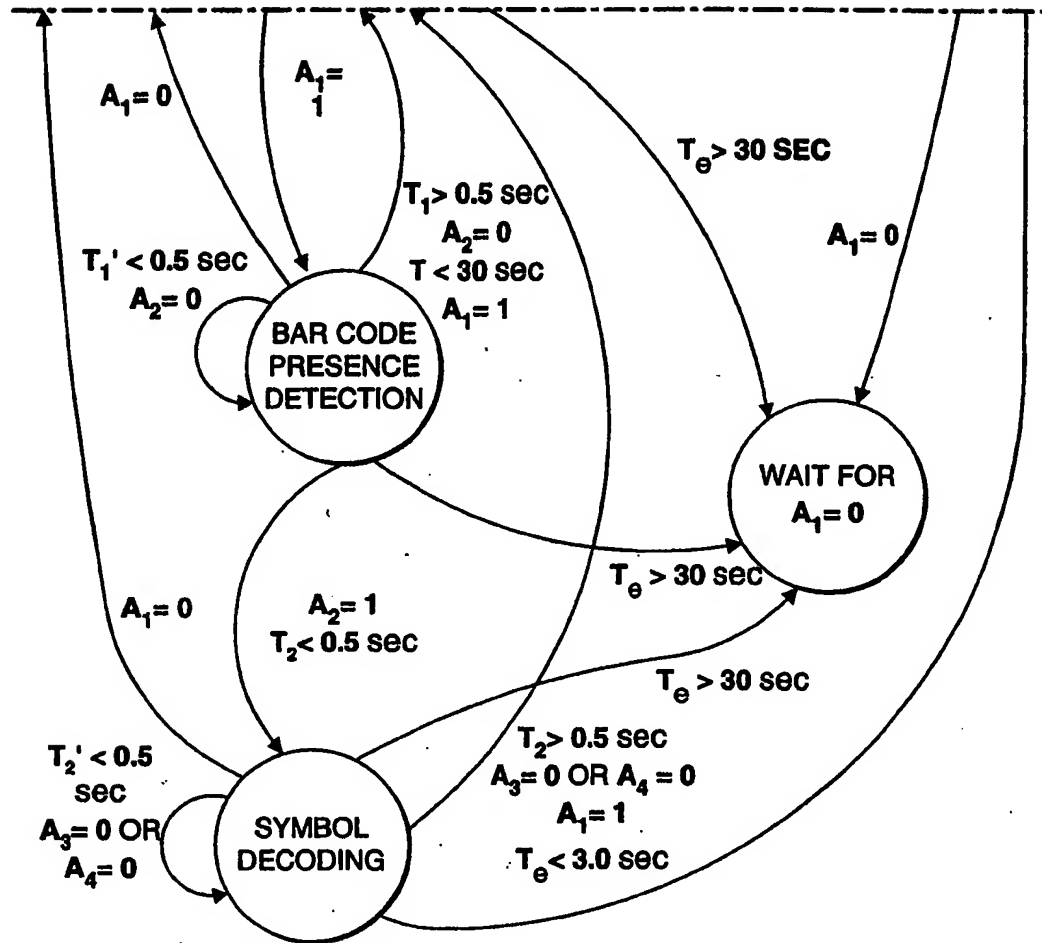


FIG. 31A



$A_3=1, A_4=1$
 $T_2' < 0.5 \text{ sec}$

*: SYMBOL CHARACTER
 DATA IS DIFFERENT
 THAN DATA ELEMENT IN
 DECODED SYMBOL
 DATA BUFFER

FIG. 31B

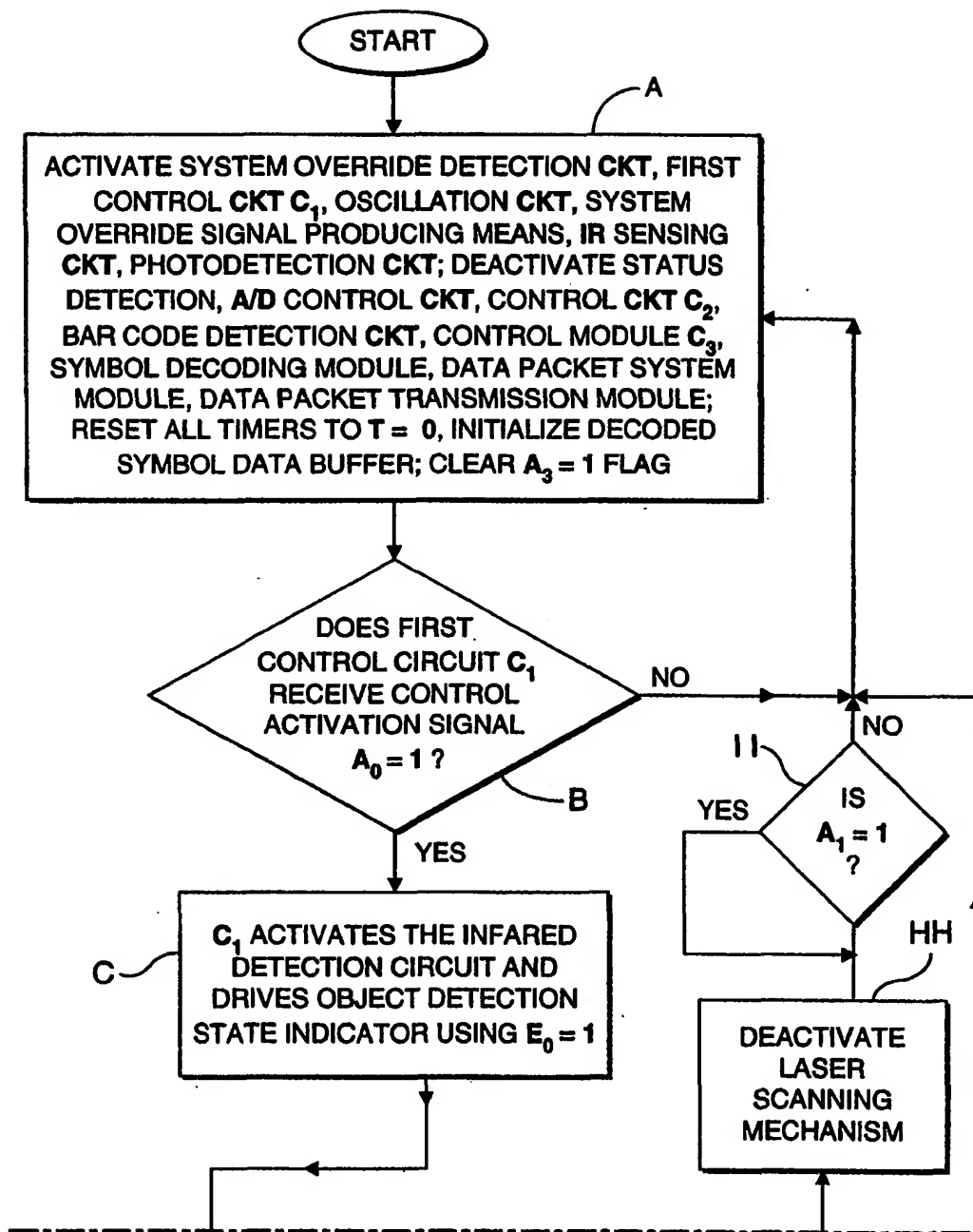
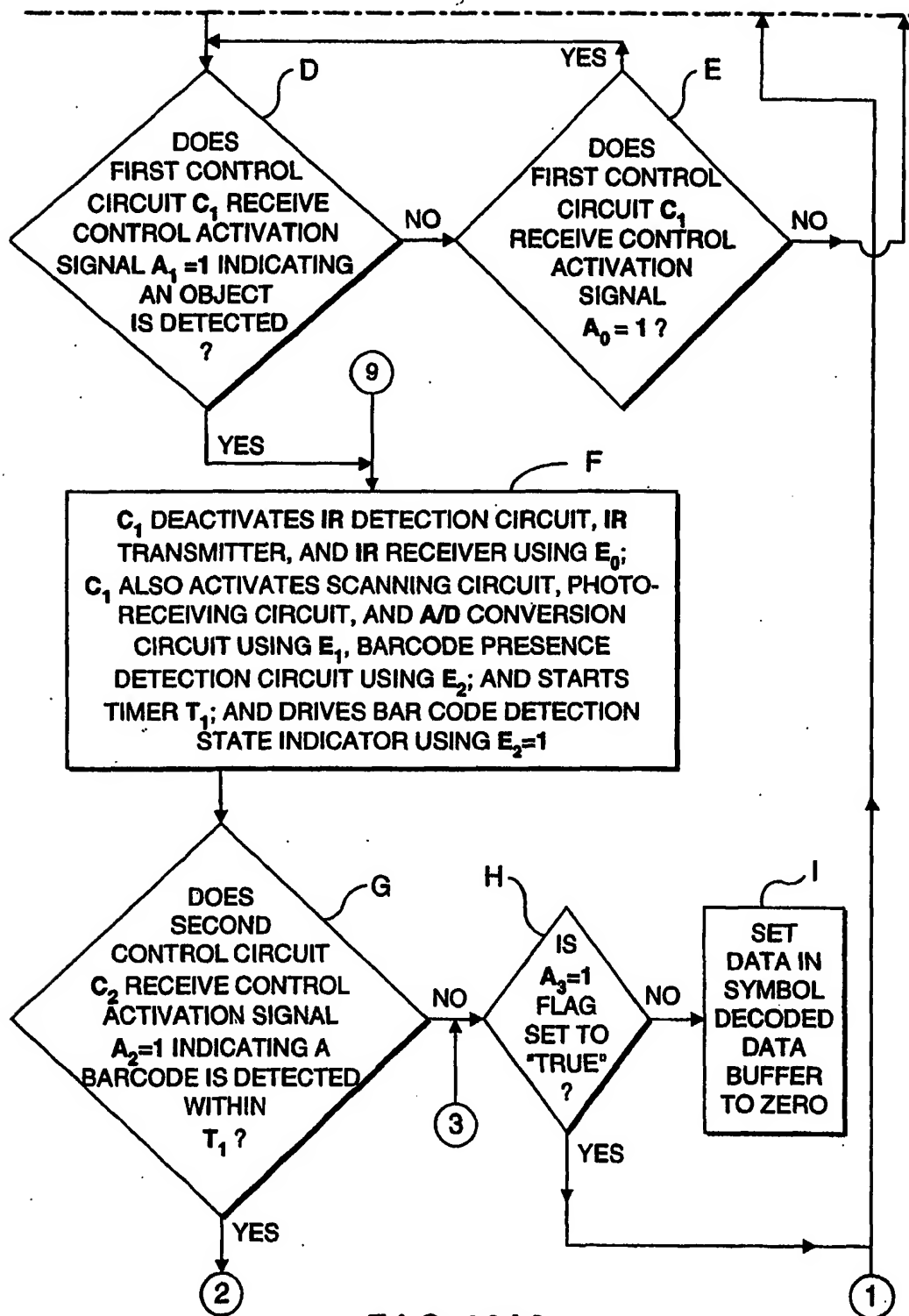


FIG. 32A1



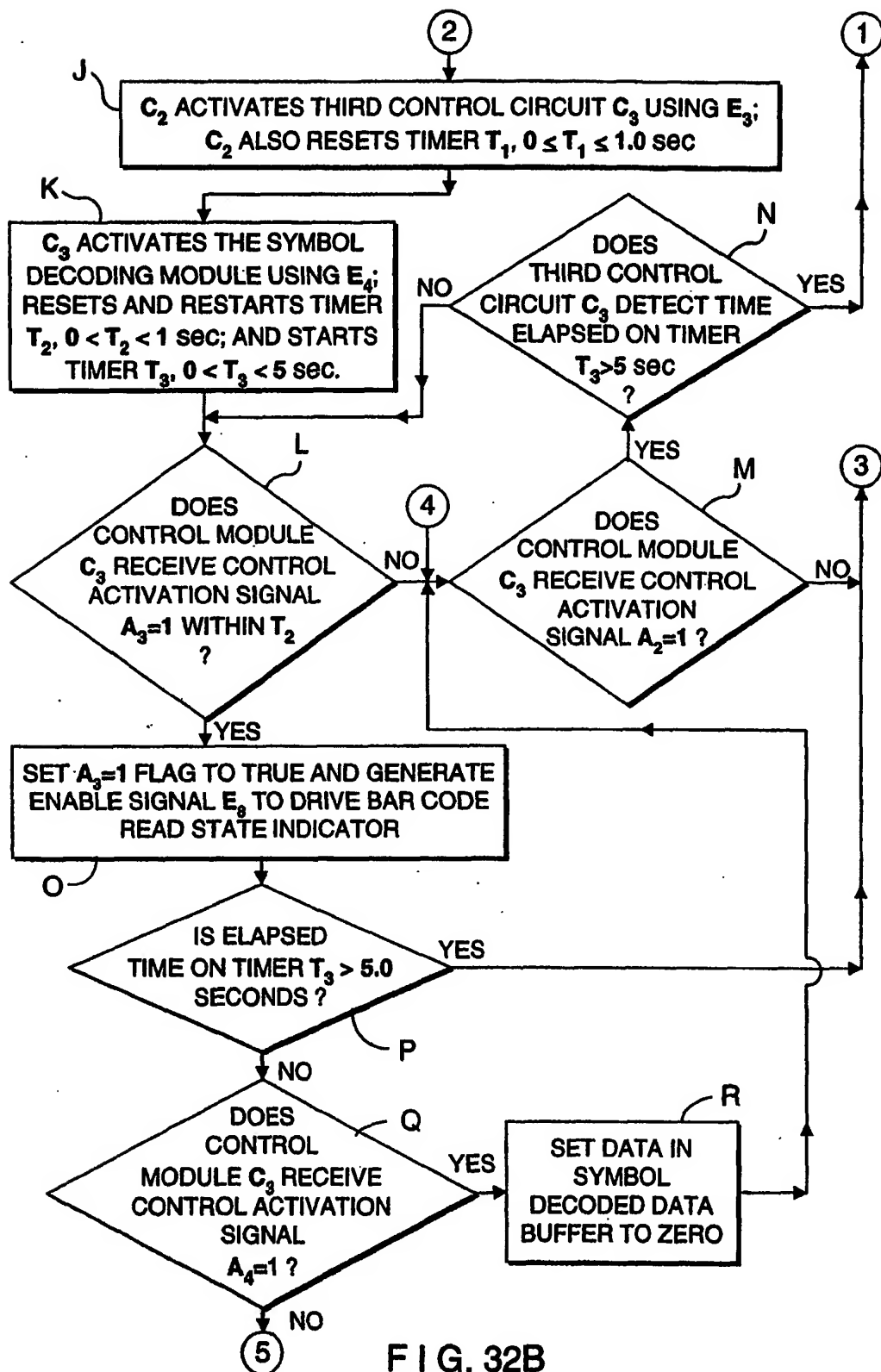


FIG. 32B

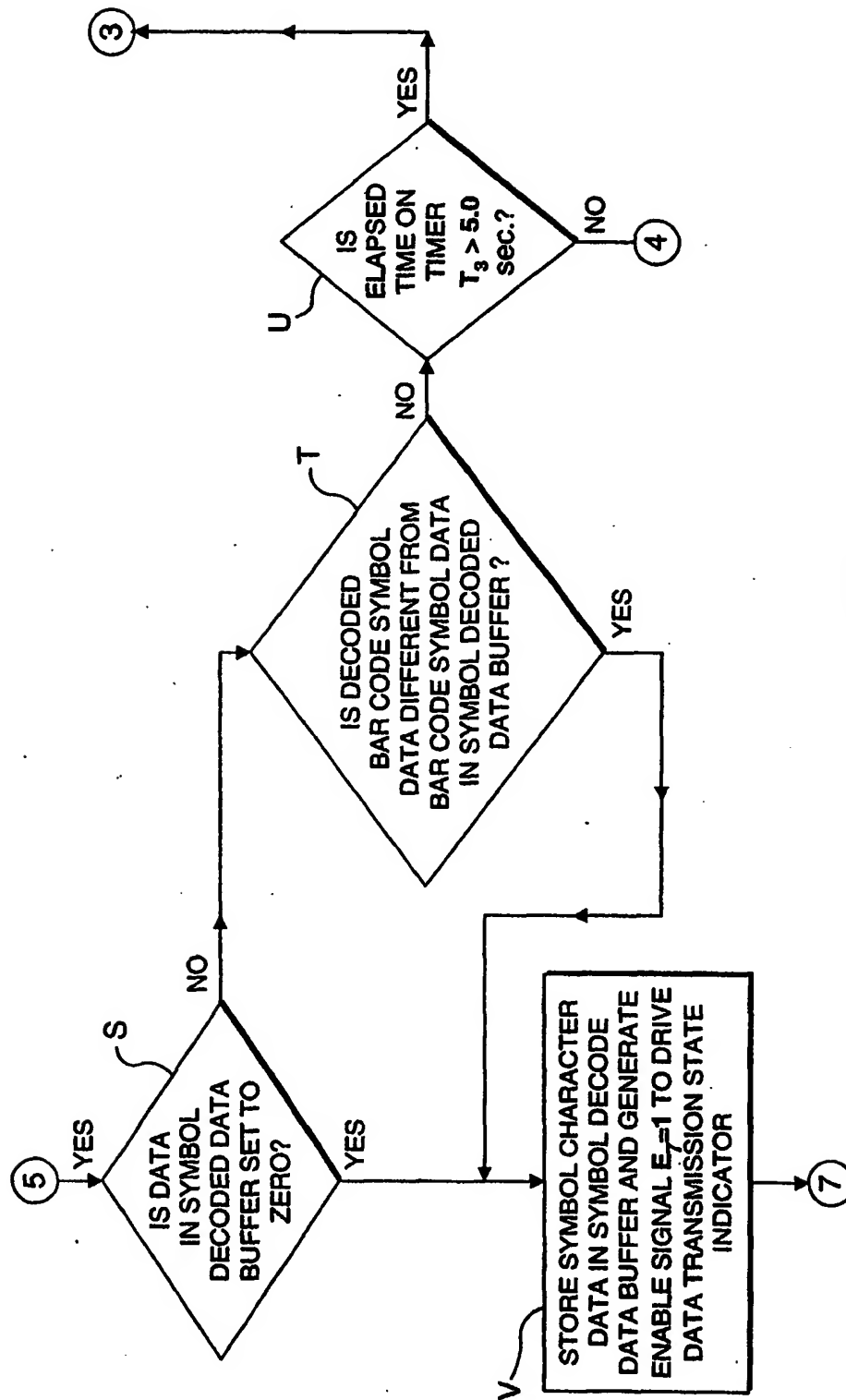


FIG. 32C

105/161

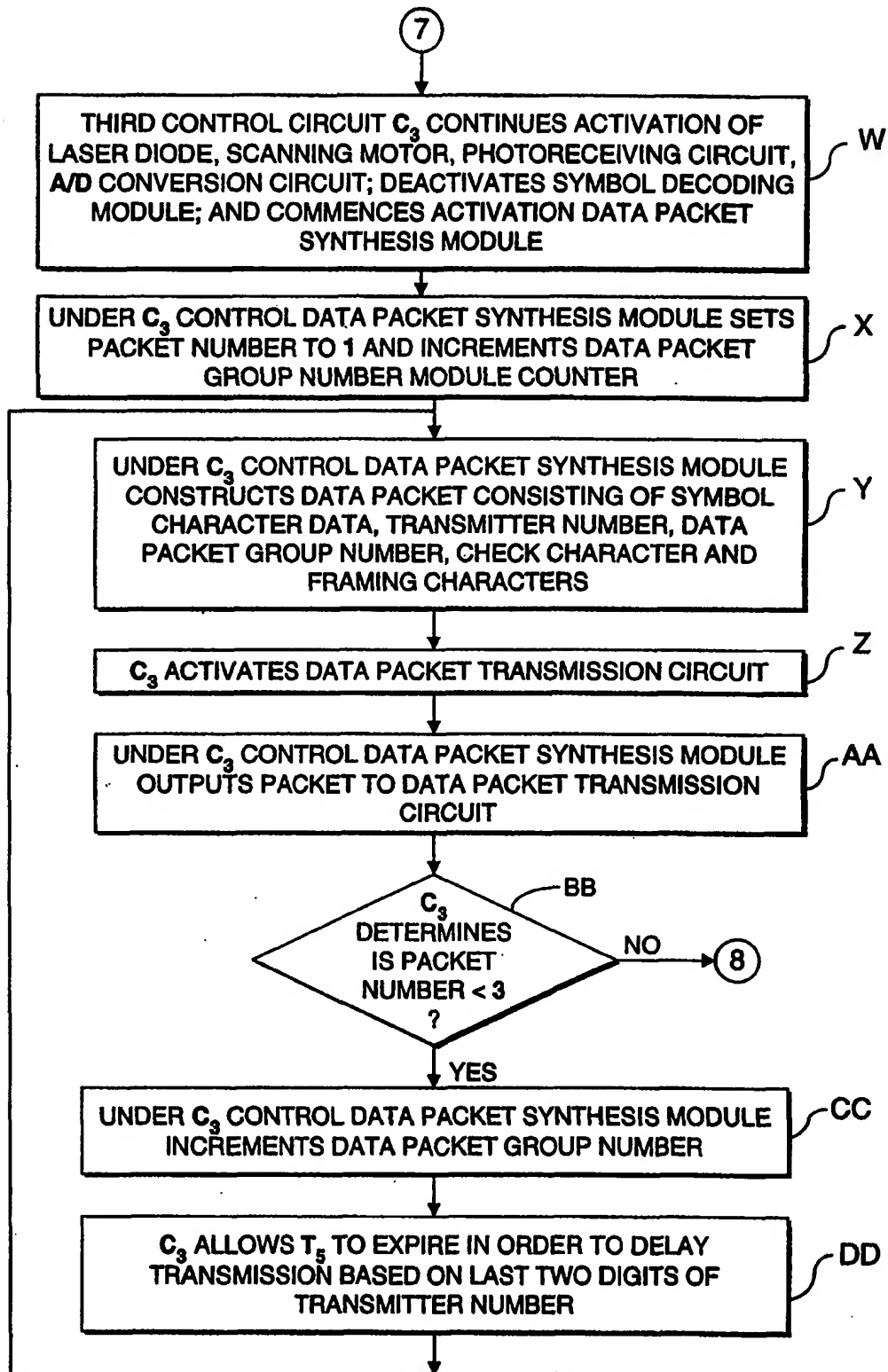


FIG. 32D

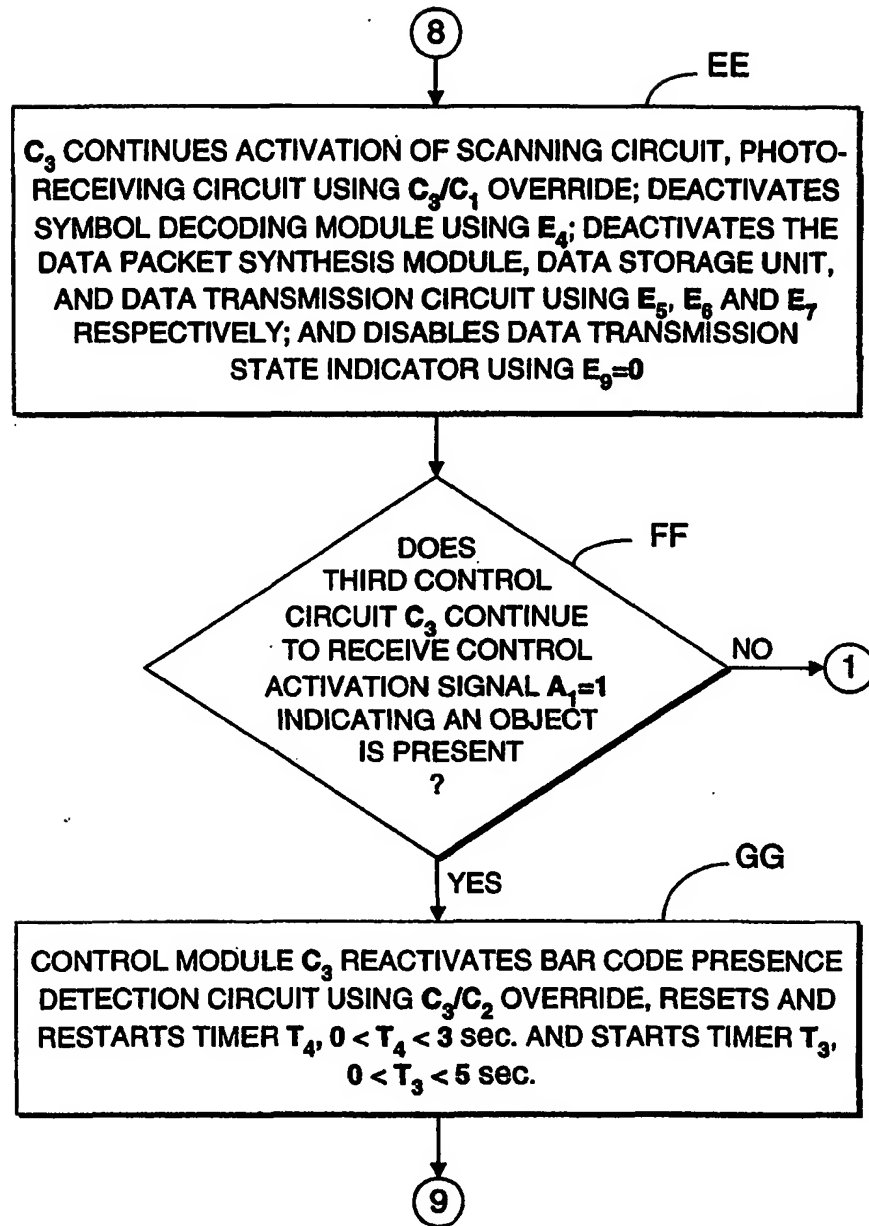


FIG. 32E

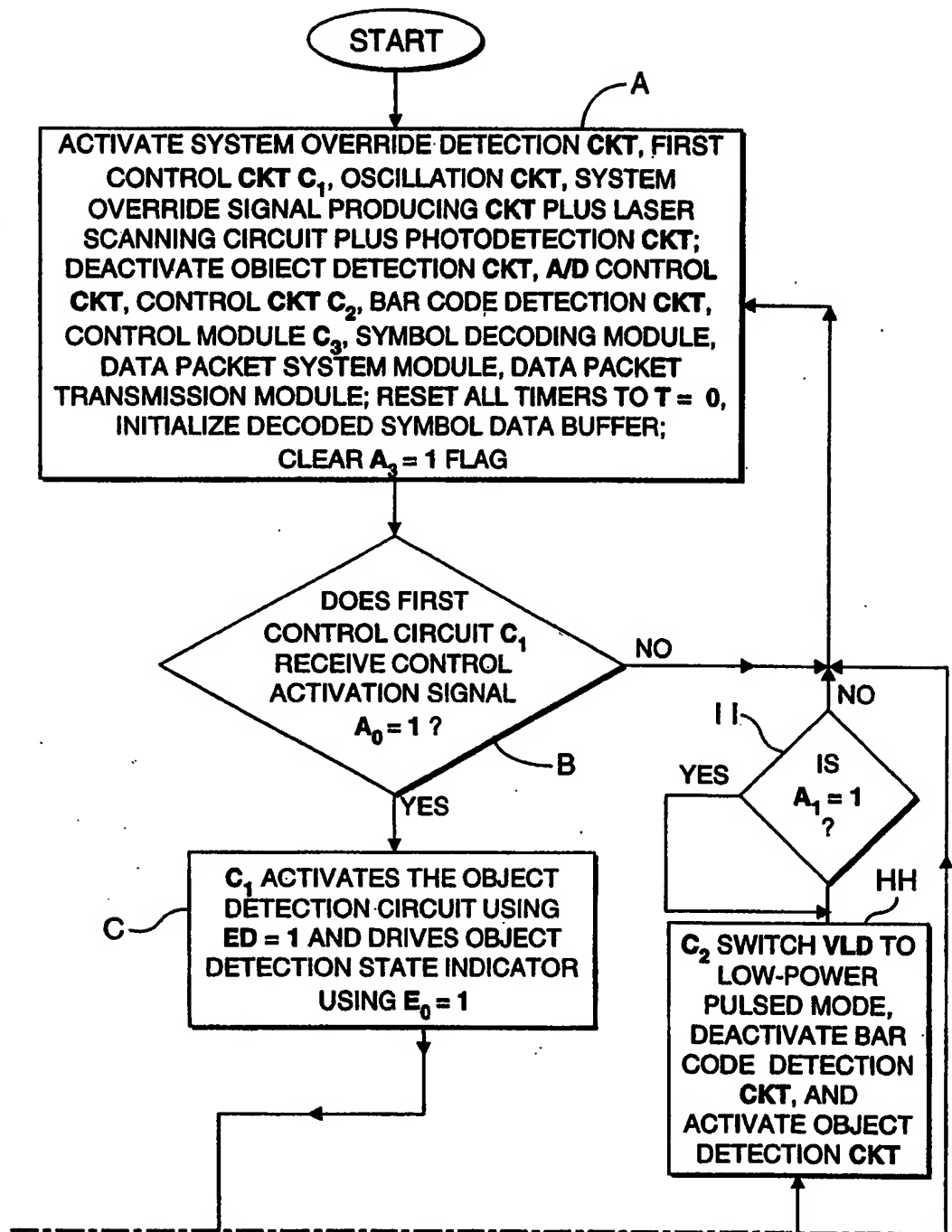


FIG. 33A1

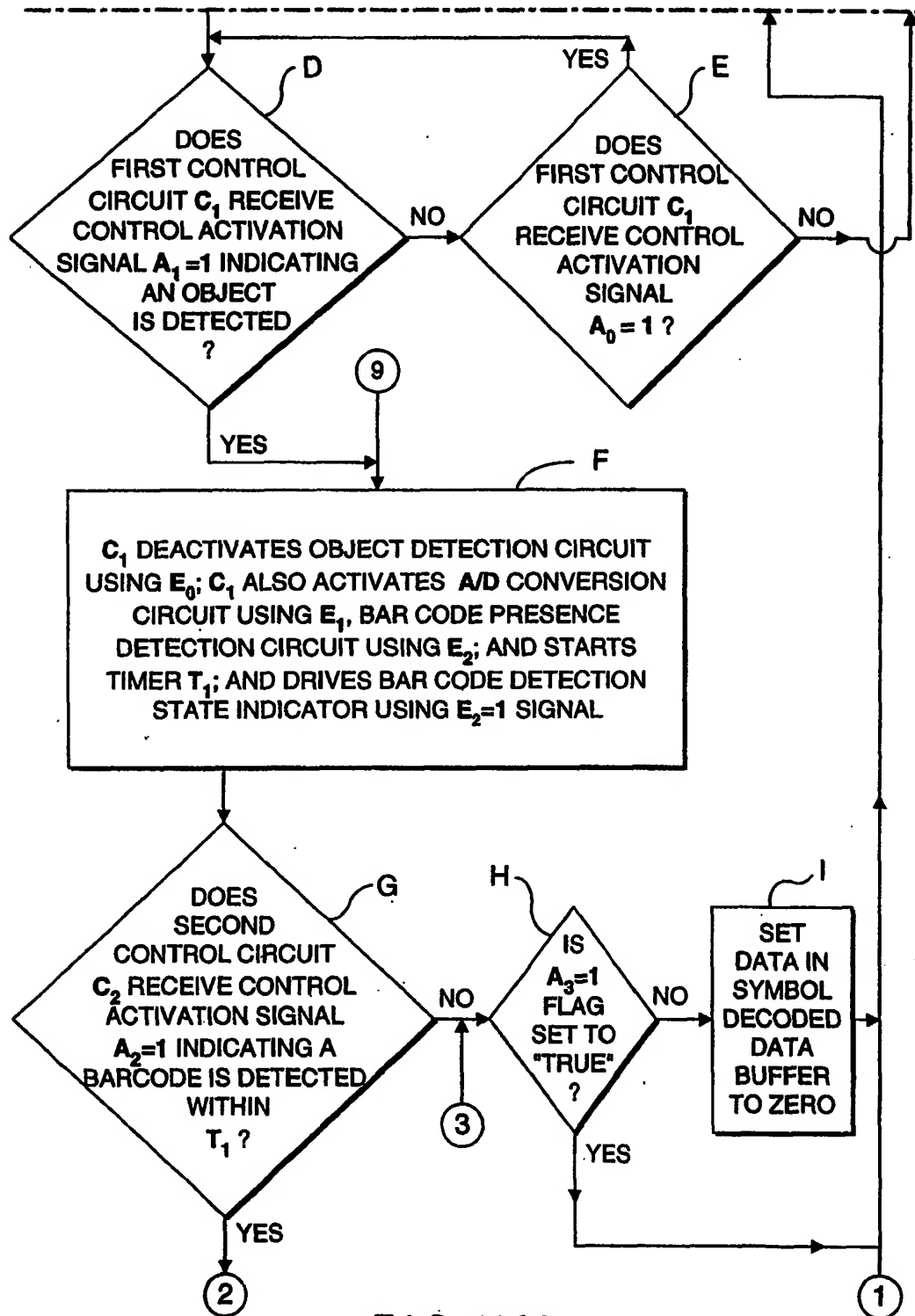
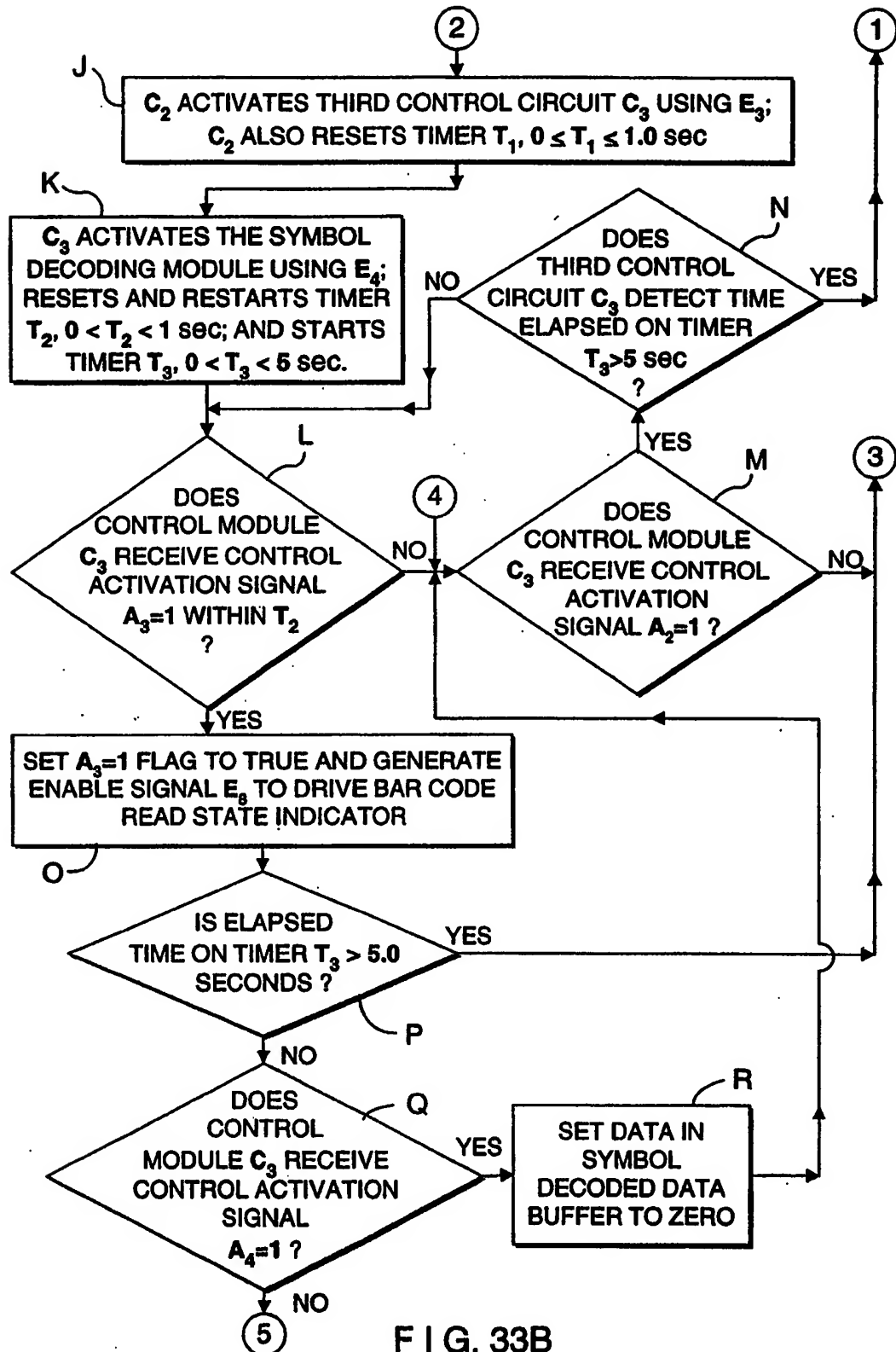


FIG. 33A2



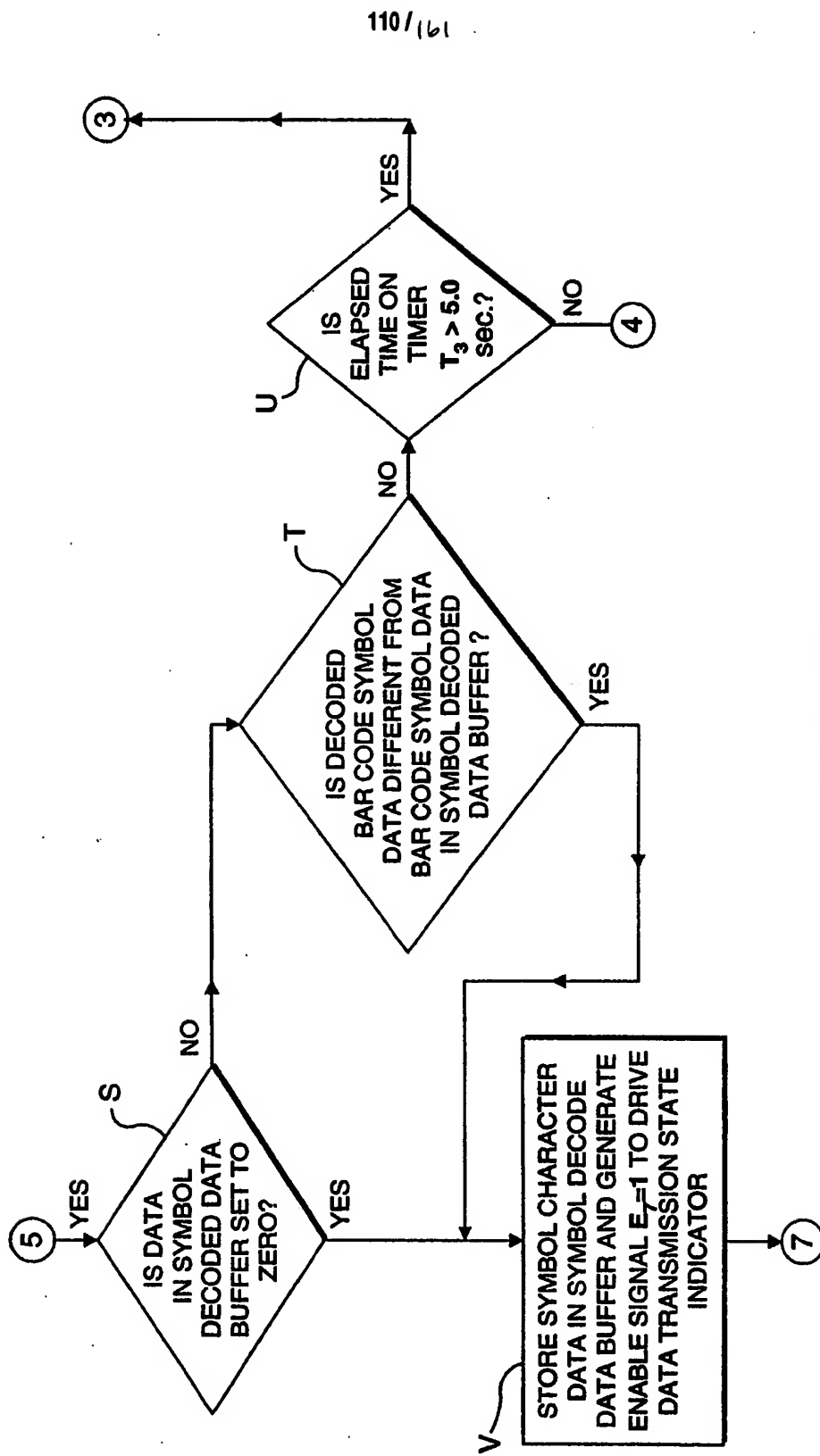


FIG. 33C

111/161

7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

W

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE SETS PACKET NUMBER TO 1 AND INCREMENTS DATA PACKET GROUP NUMBER MODULE COUNTER

X

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

Y

C_3 ACTIVATES DATA PACKET TRANSMISSION CIRCUIT

Z

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE OUTPUTS PACKET TO DATA PACKET TRANSMISSION CIRCUIT

AA

C_3 DETERMINES IS PACKET NUMBER < 3 ?

BB

NO

8

YES

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE INCREMENTS DATA PACKET GROUP NUMBER

CC

C_3 ALLOWS T_5 TO EXPIRE IN ORDER TO DELAY TRANSMISSION BASED ON LAST TWO DIGITS OF TRANSMITTER NUMBER

DD

FIG. 33D

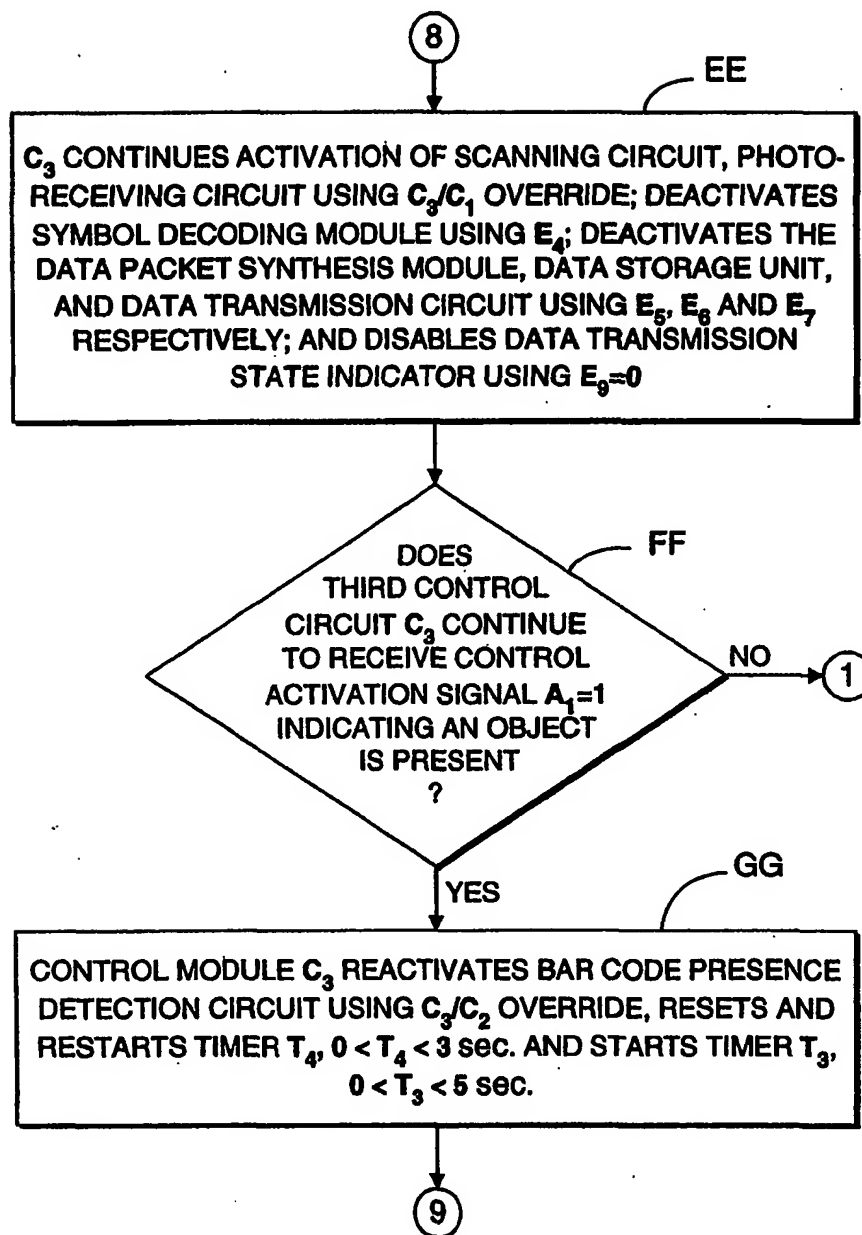
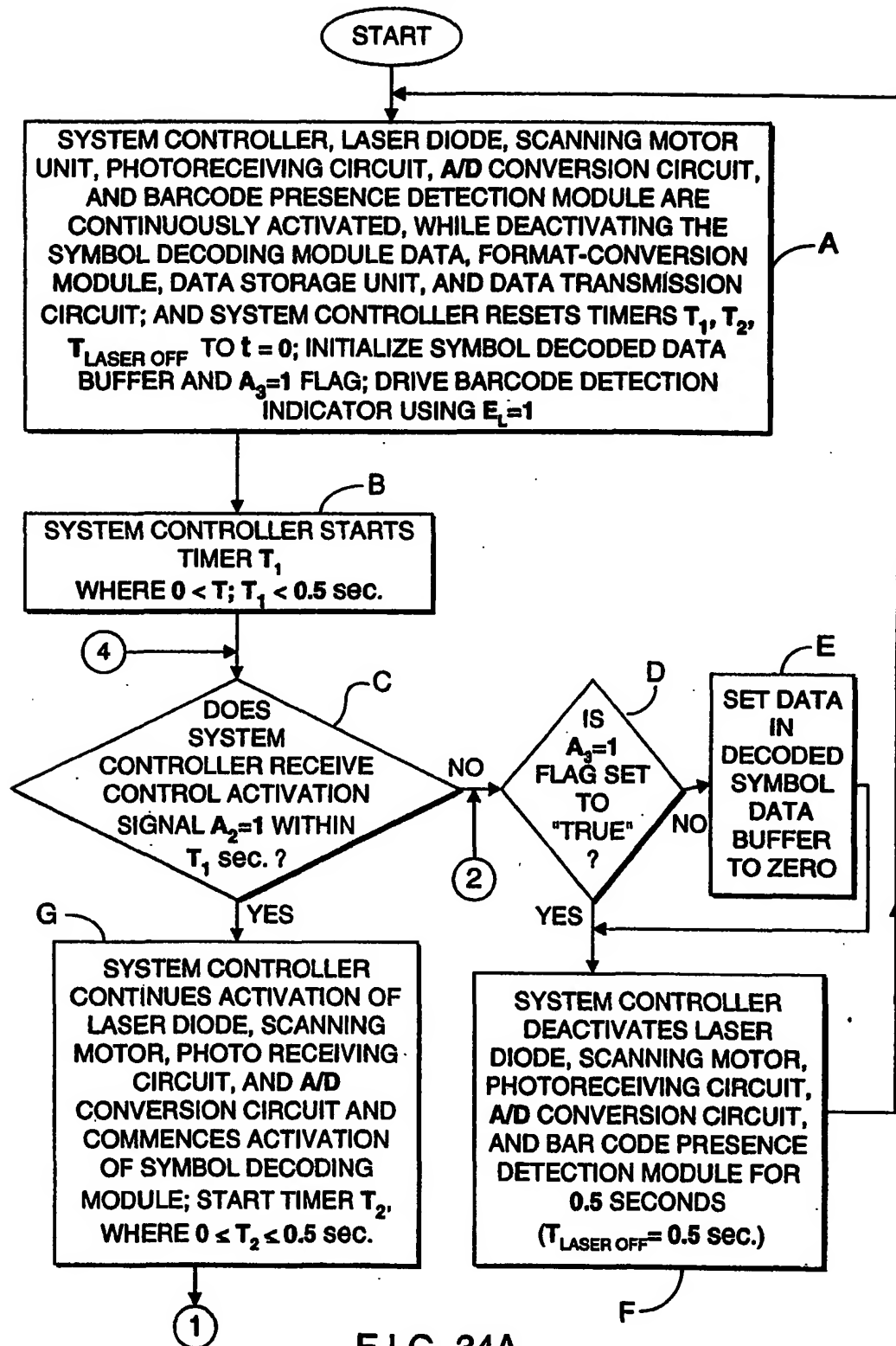


FIG. 33E



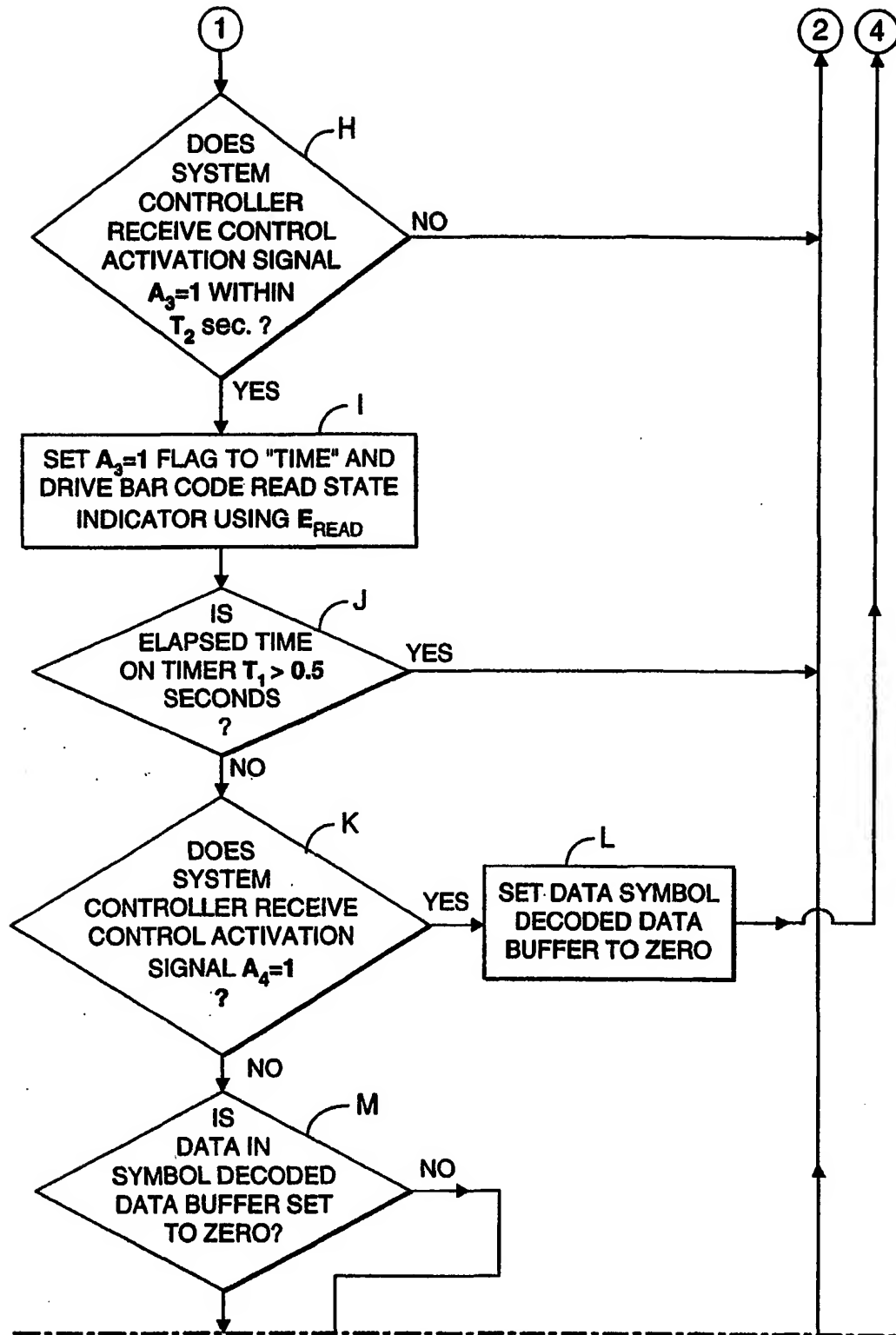


FIG. 34B1

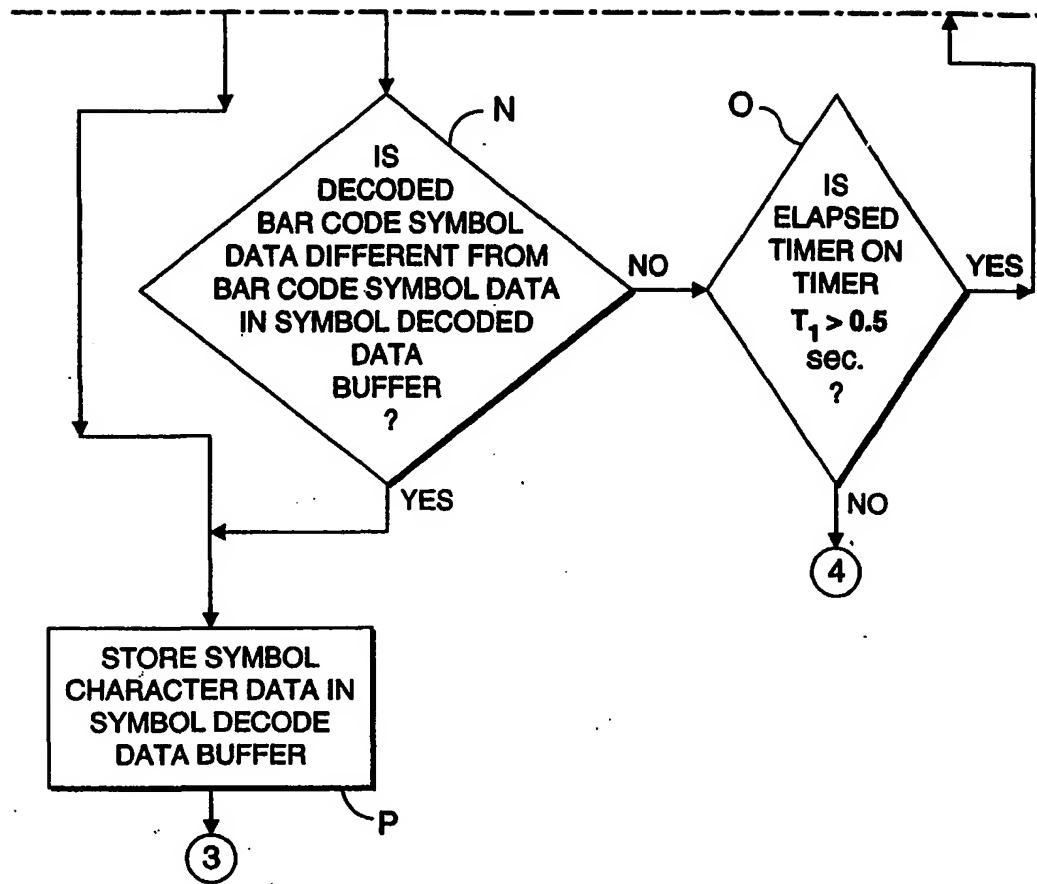


FIG. 34B2

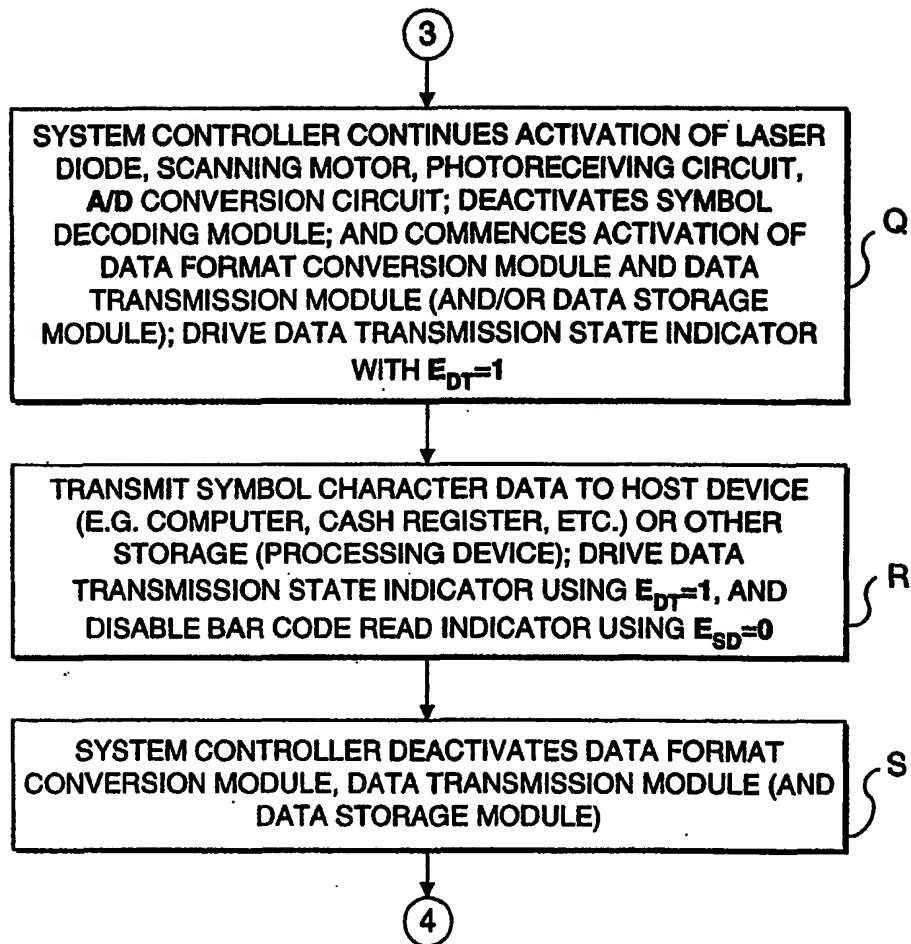


FIG. 34C

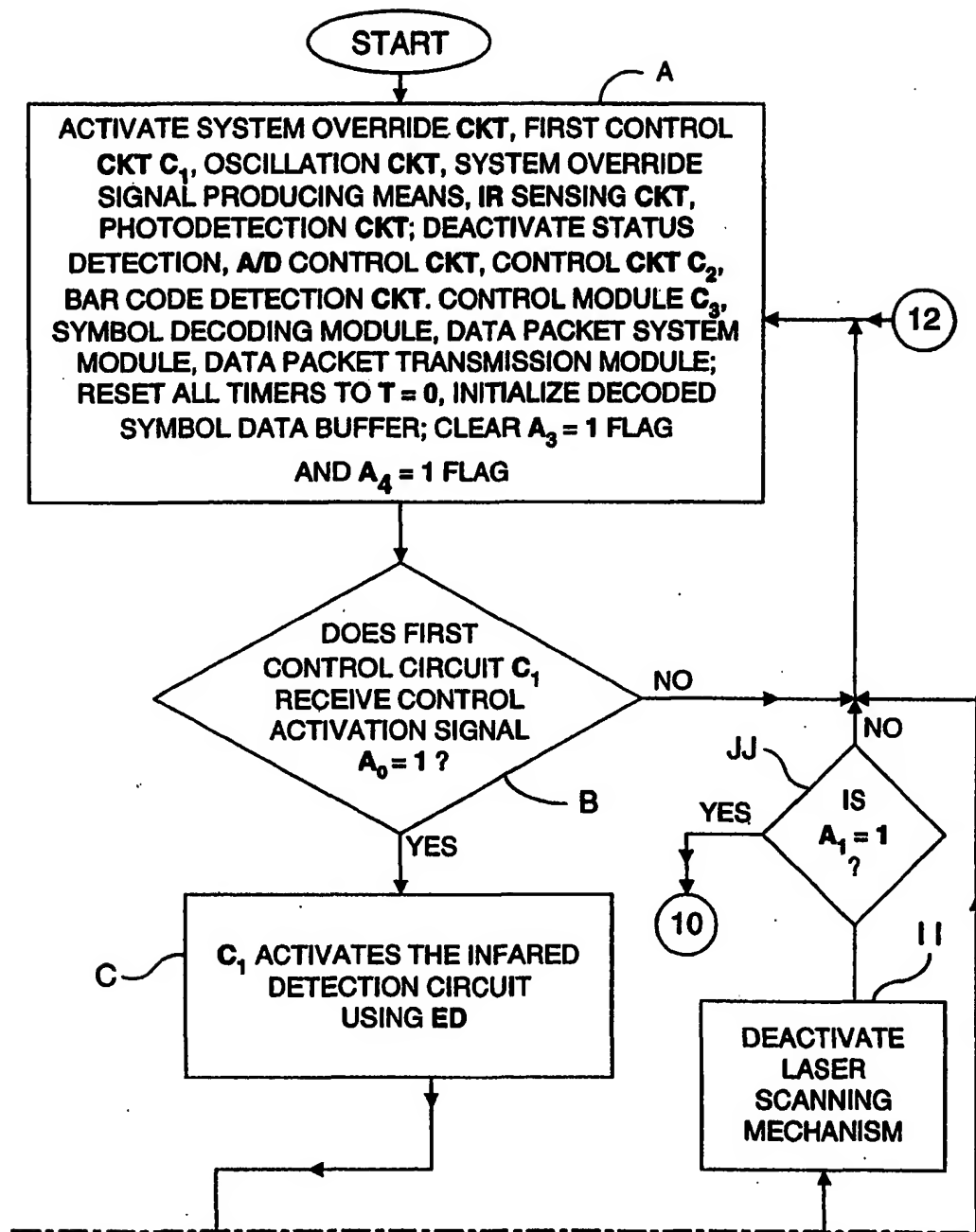
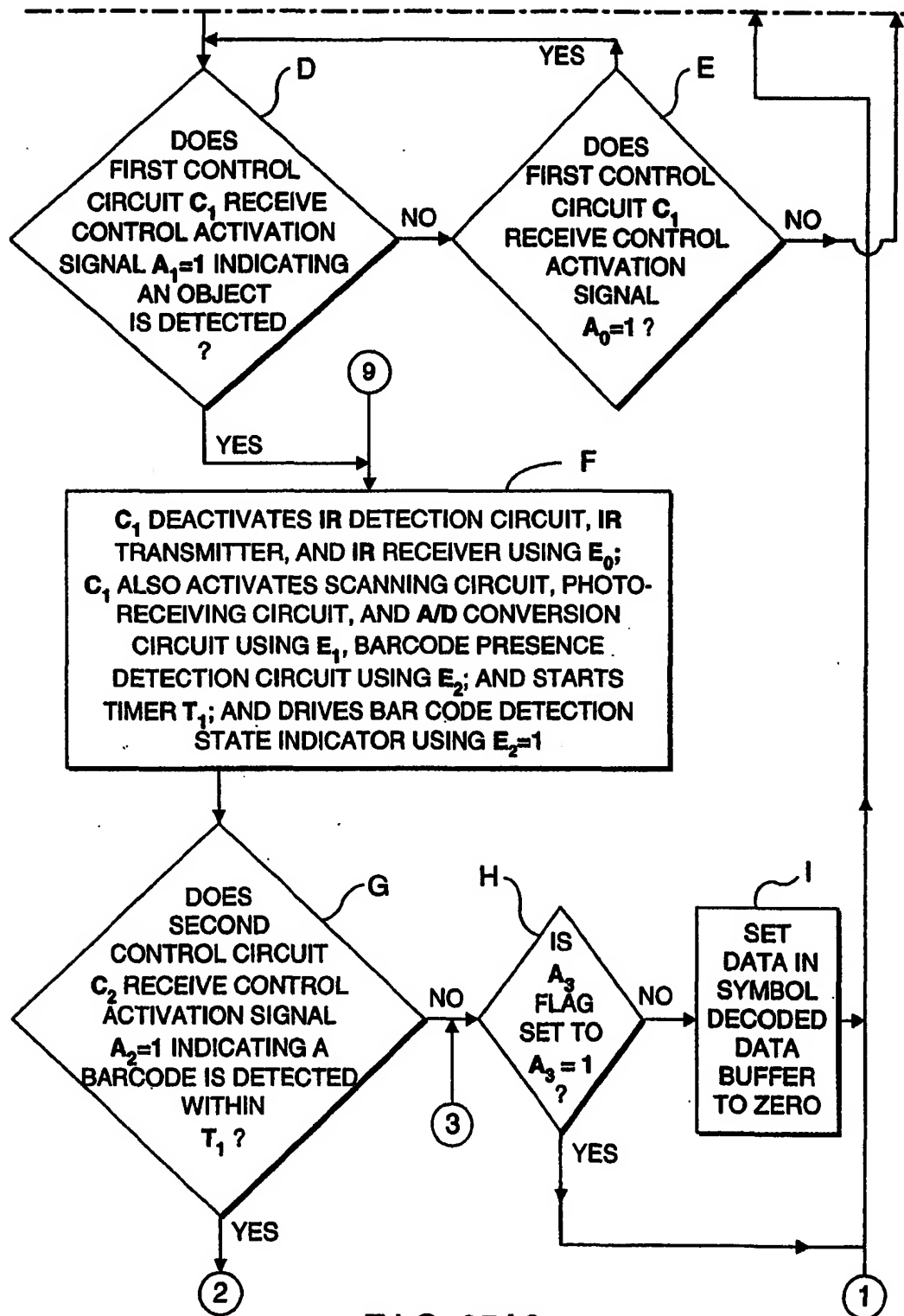


FIG. 35A1



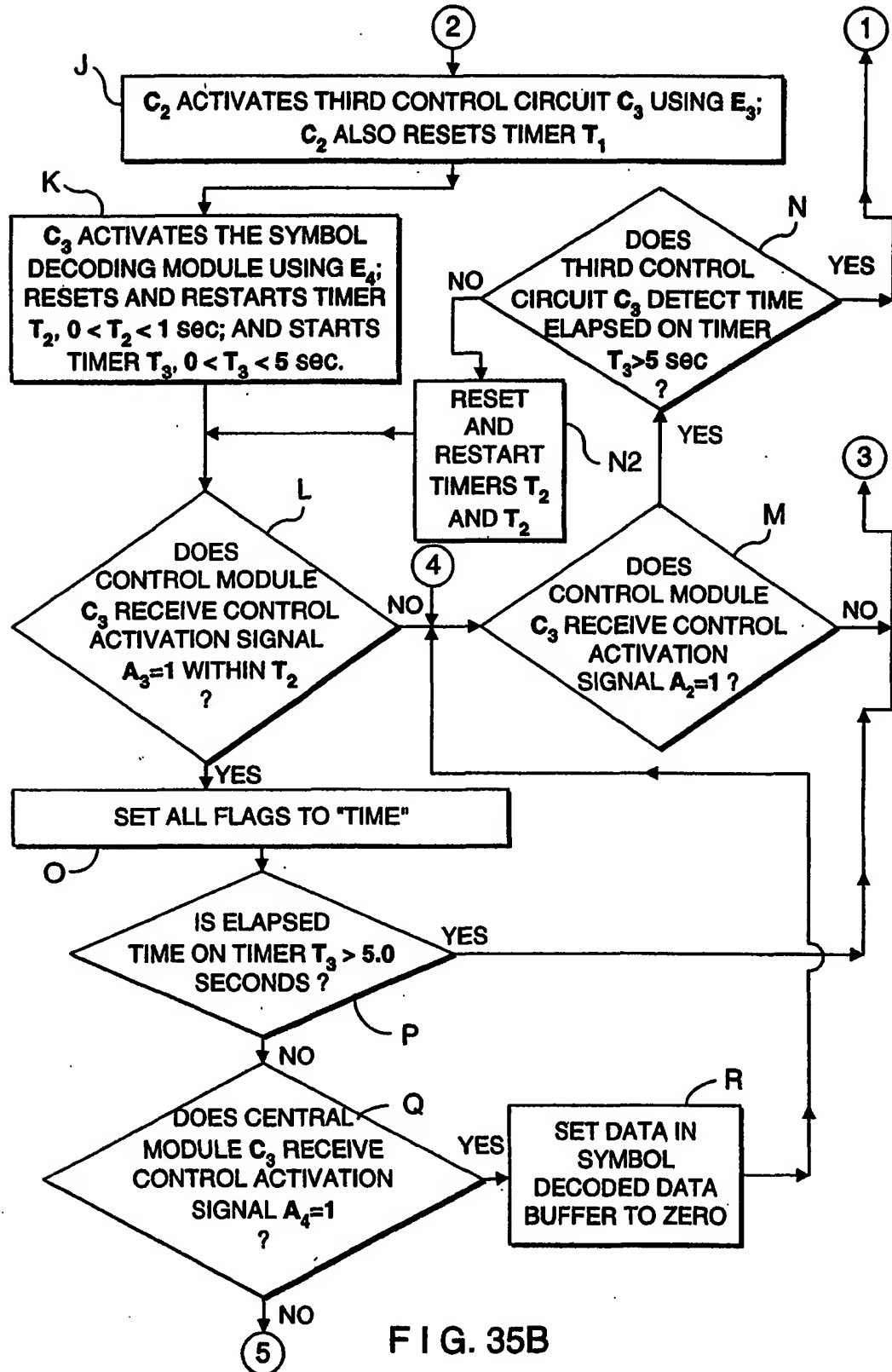


FIG. 35B

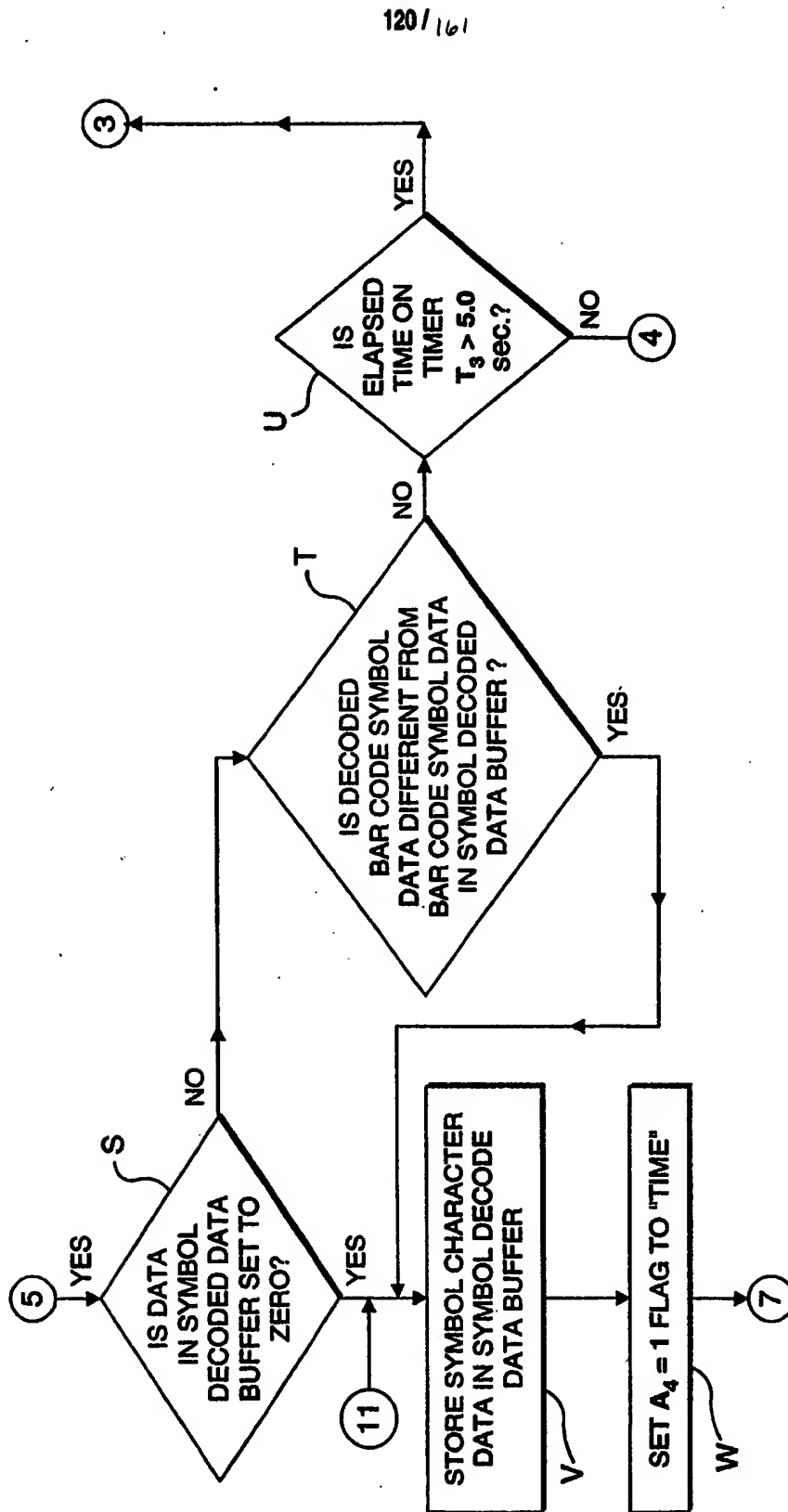


FIG. 35C

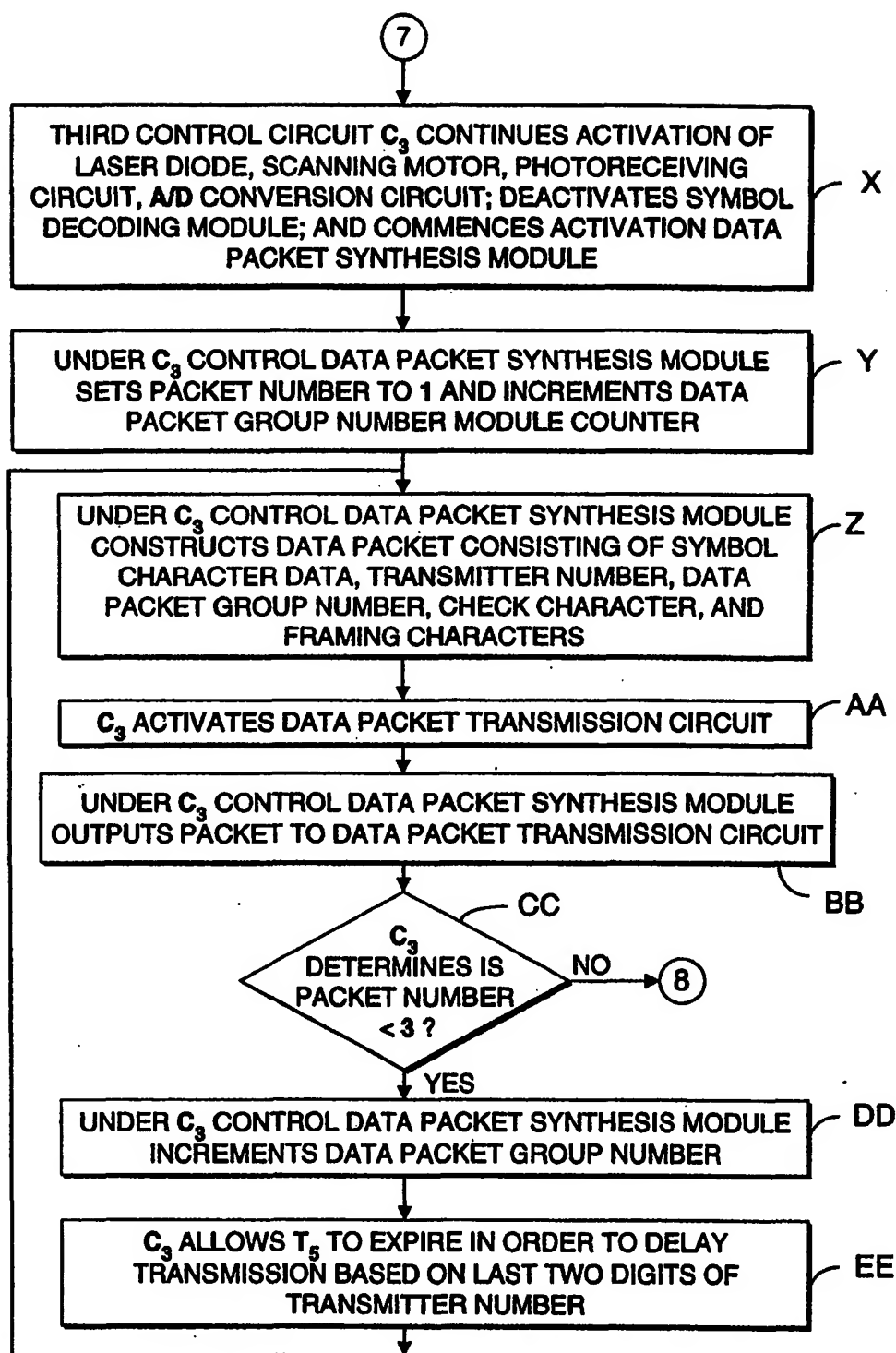


FIG. 35D

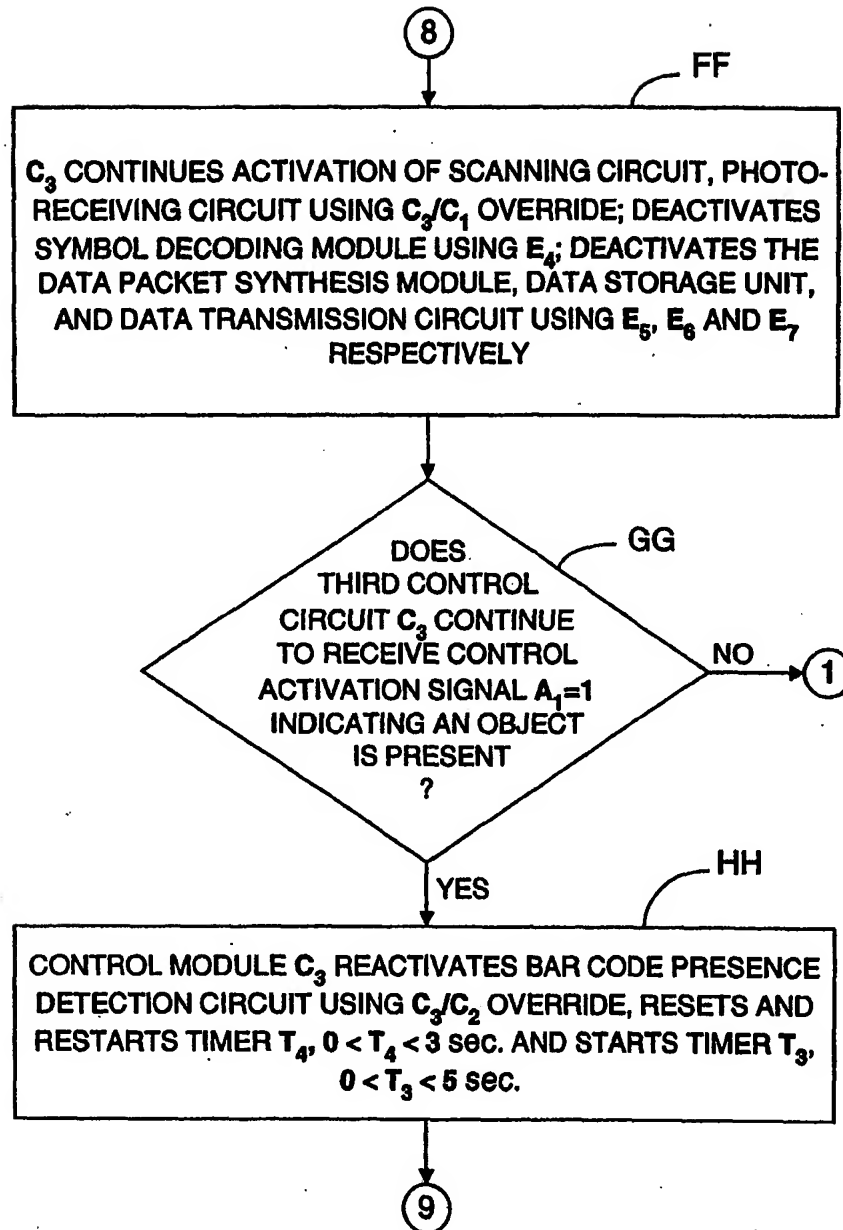


FIG. 35E

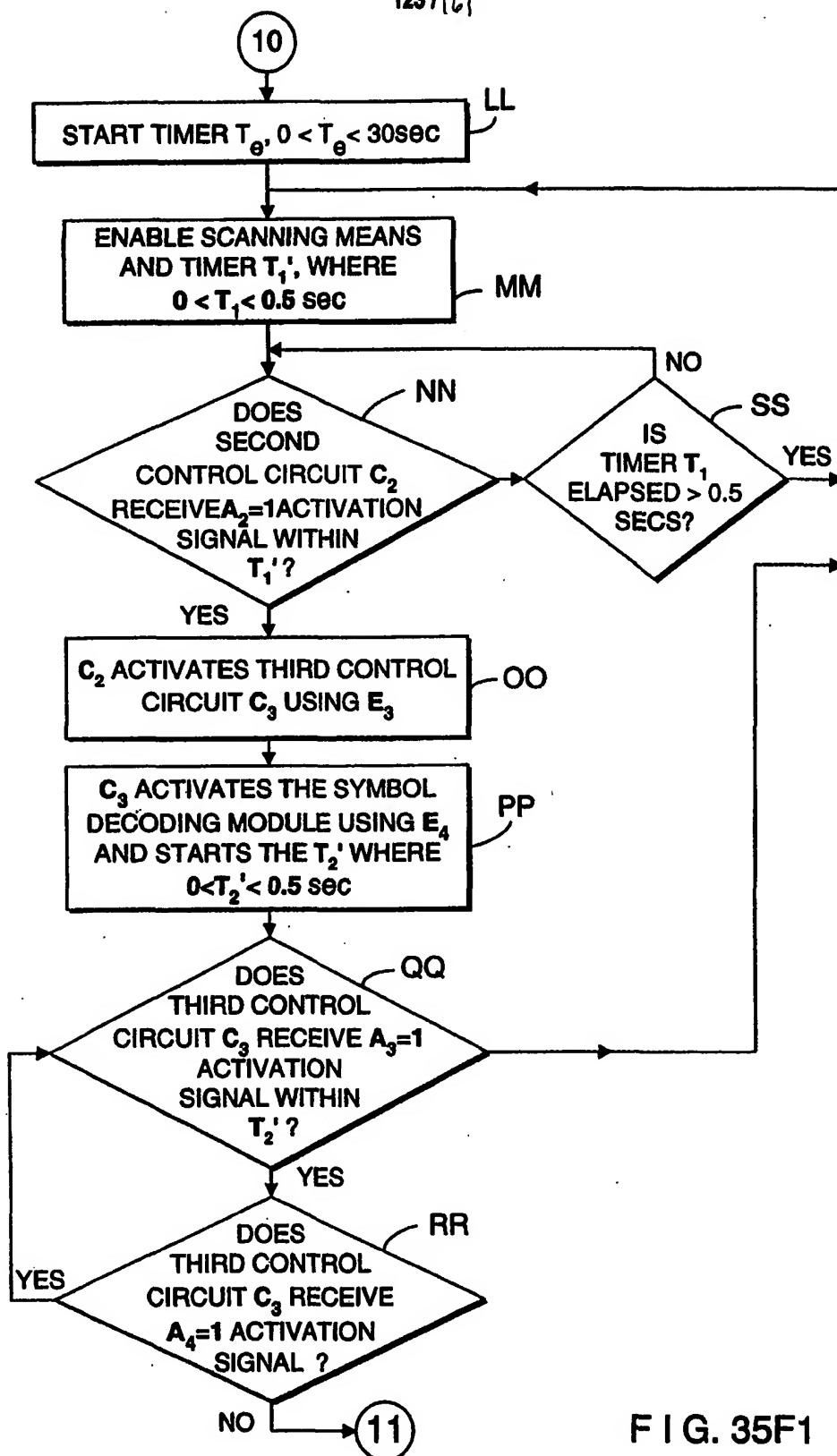
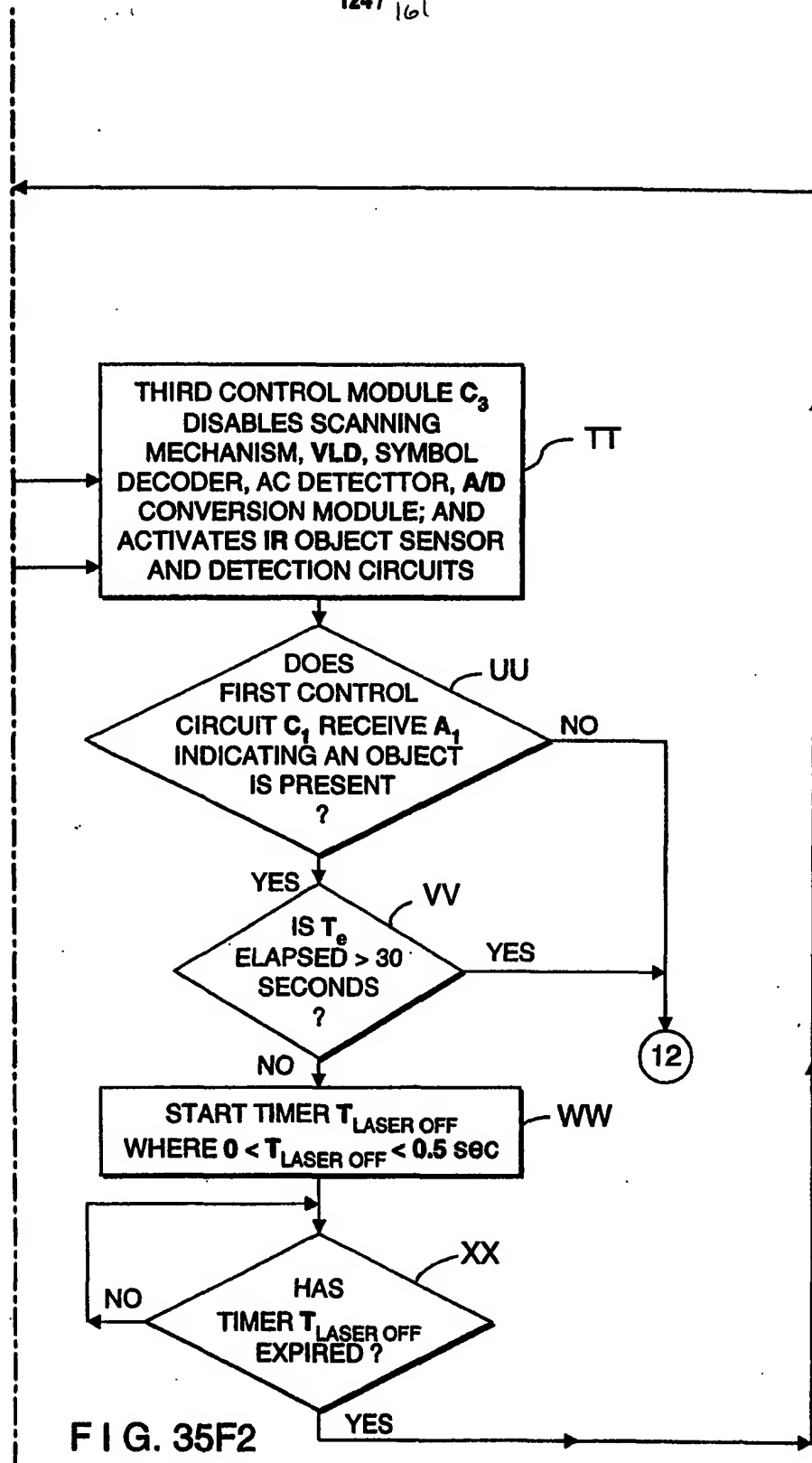
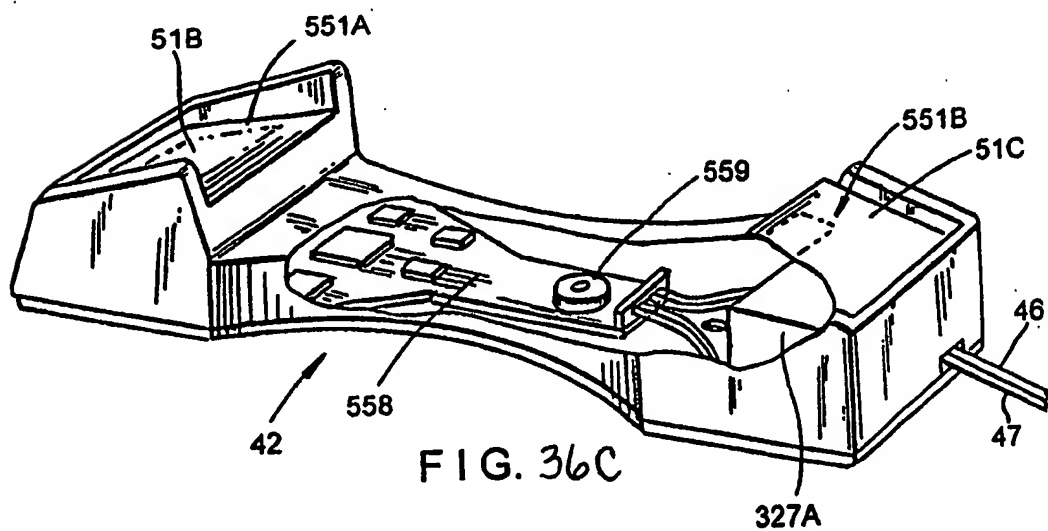
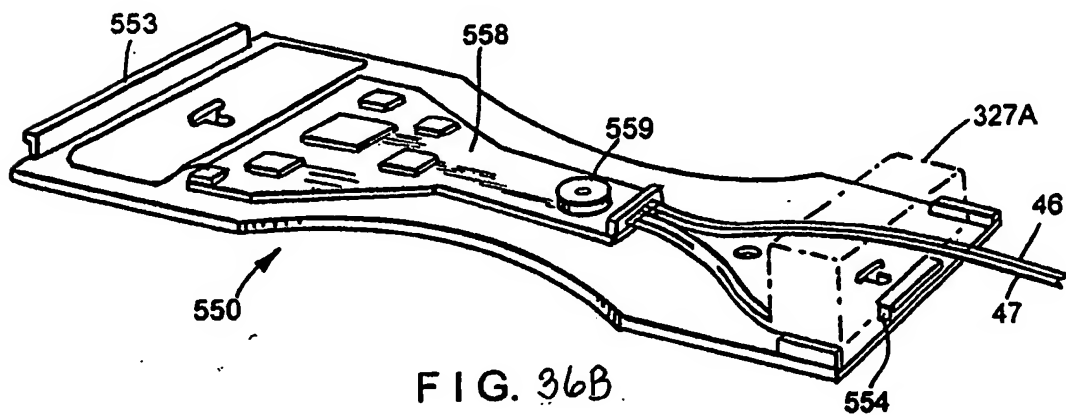
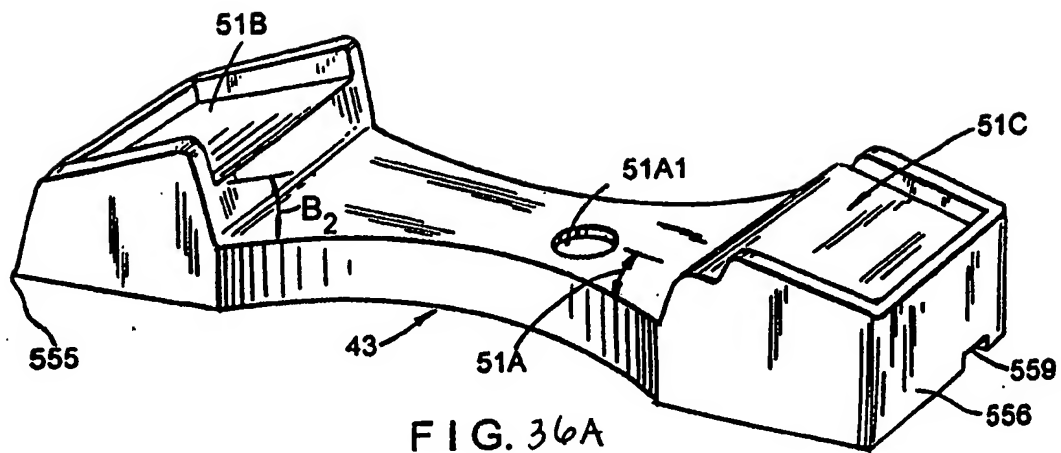


FIG. 35F1



125/161



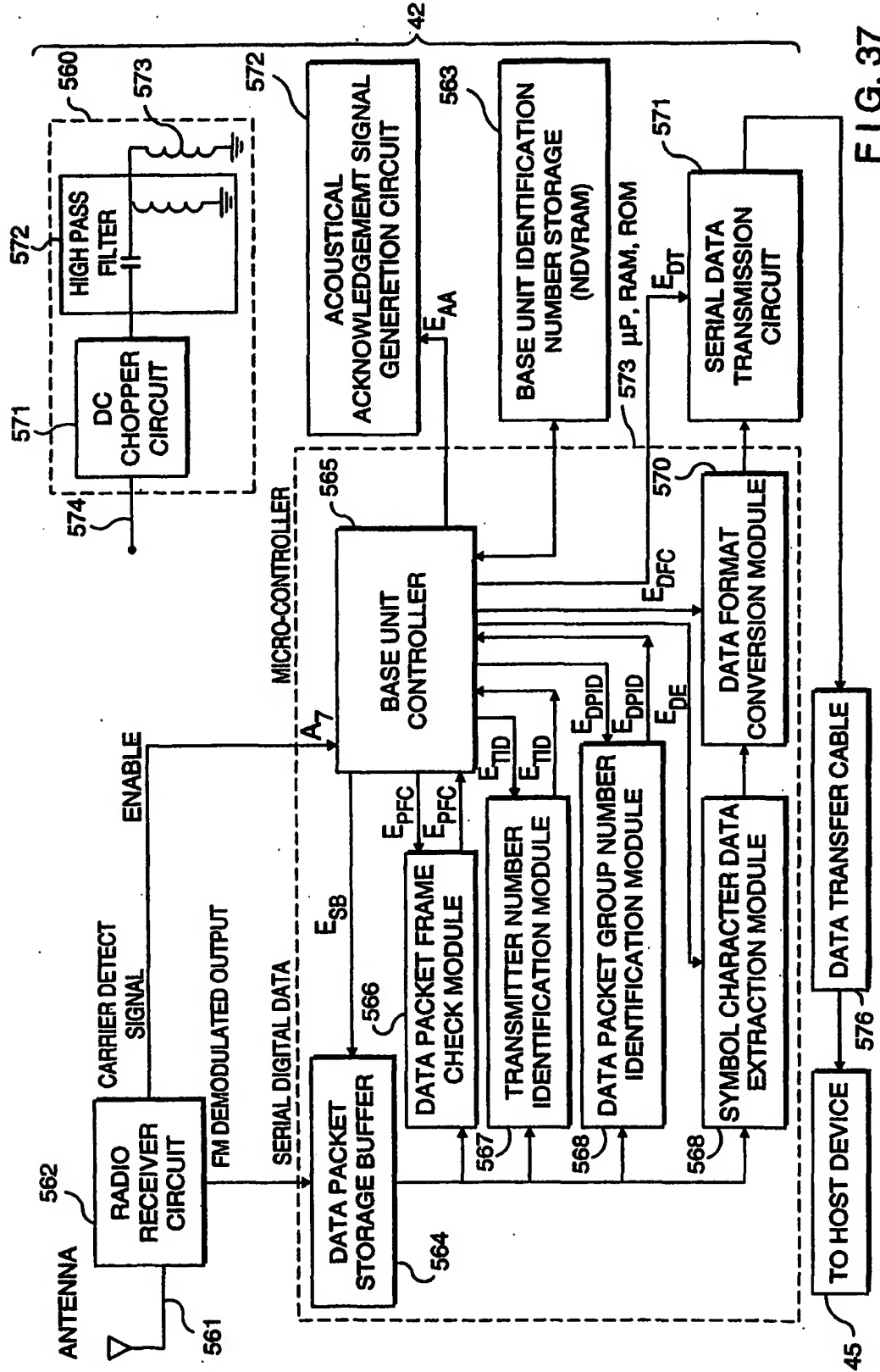


FIG. 37

127/161

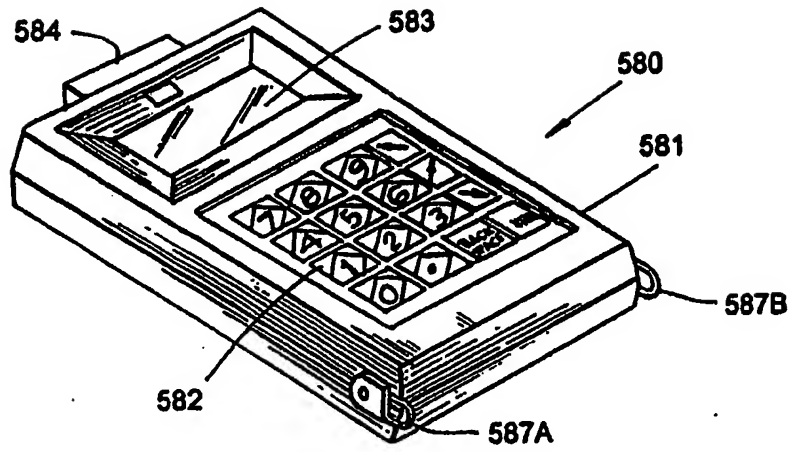


FIG. 38A

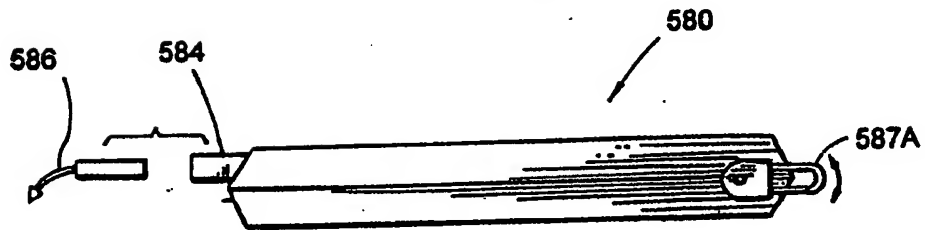


FIG. 38B

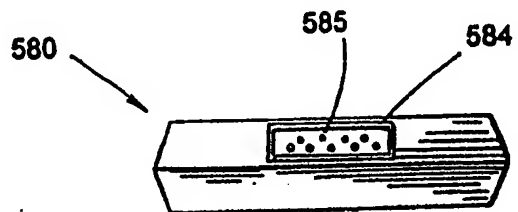


FIG. 38C

128/161

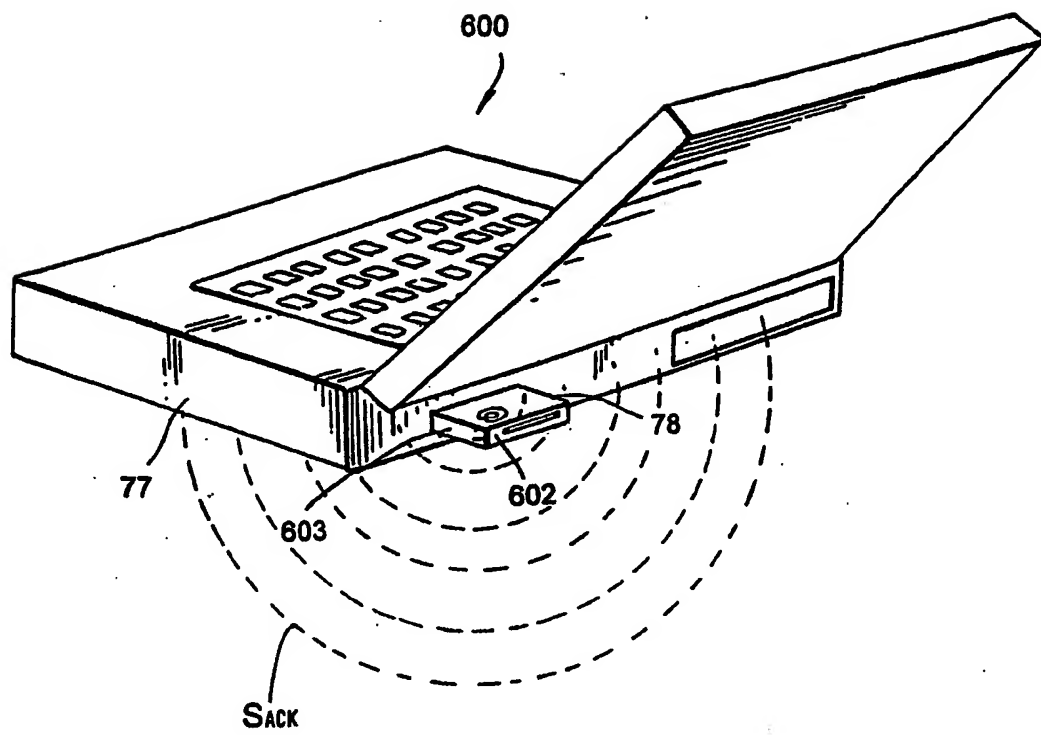


FIG. 39

129/161

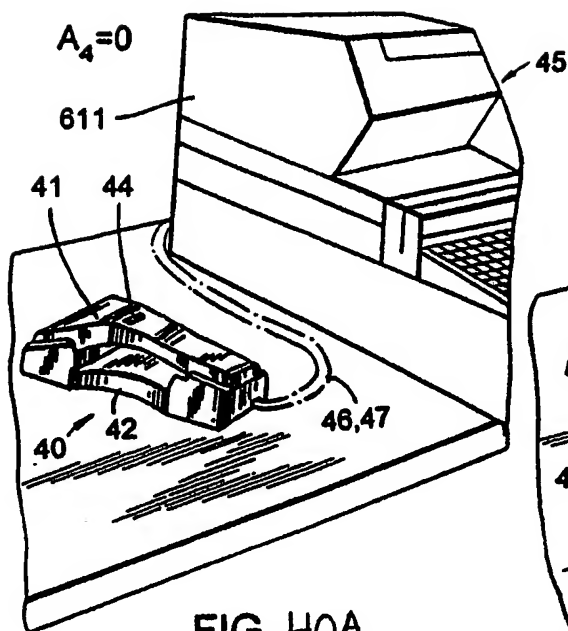


FIG. 40A

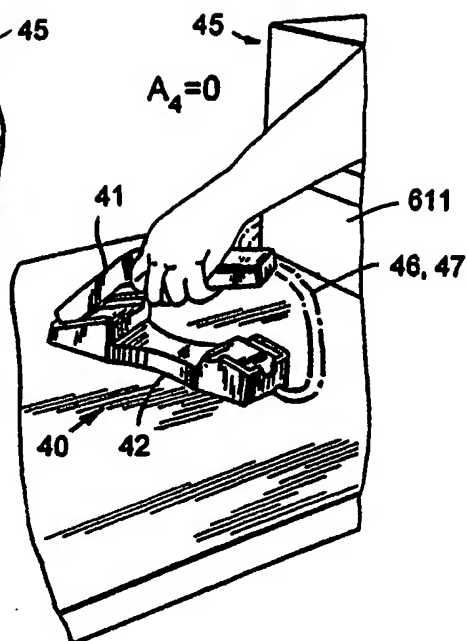


FIG. 40B

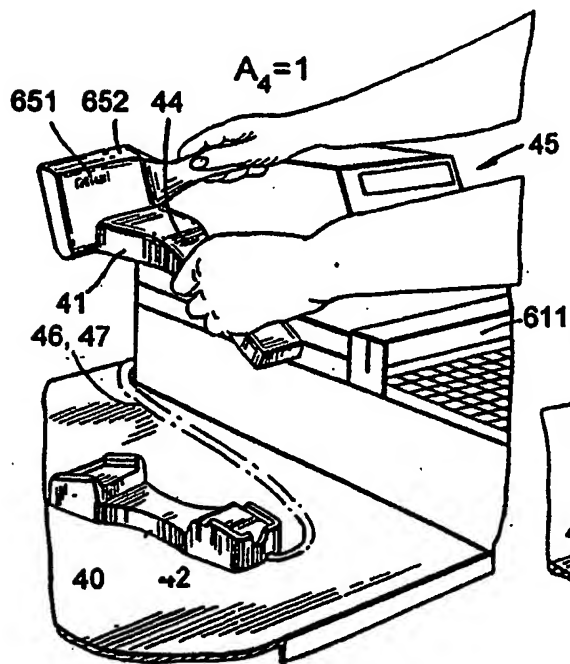


FIG. 40C

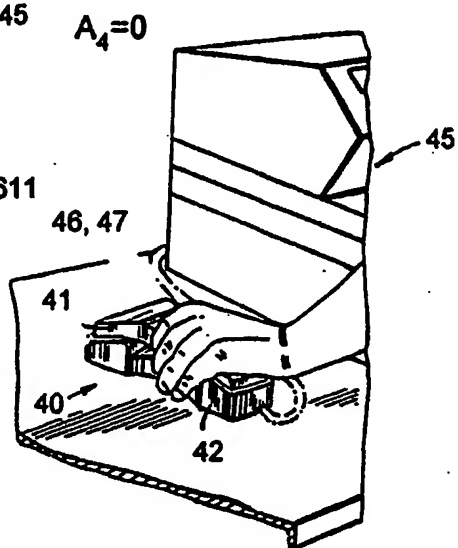


FIG. 40D

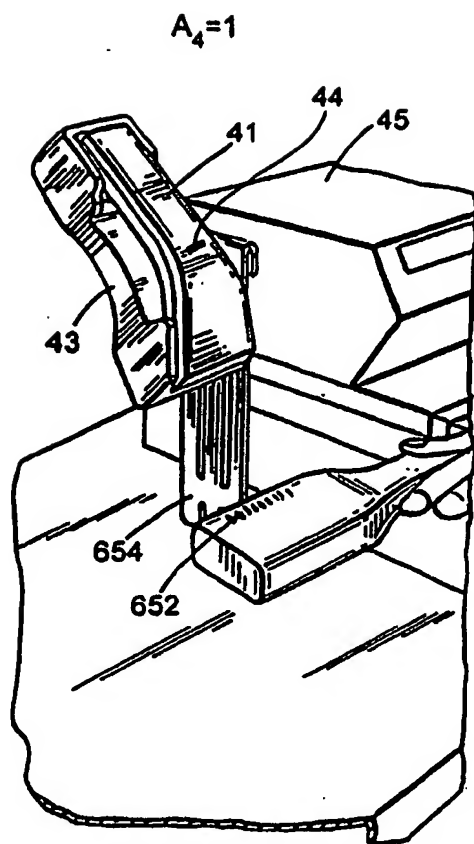


FIG. 41A

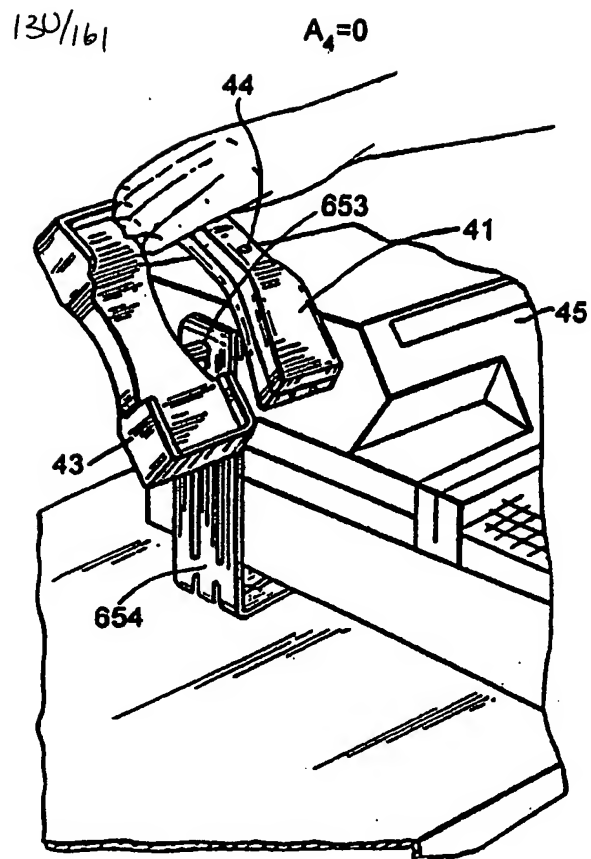


FIG. 41B

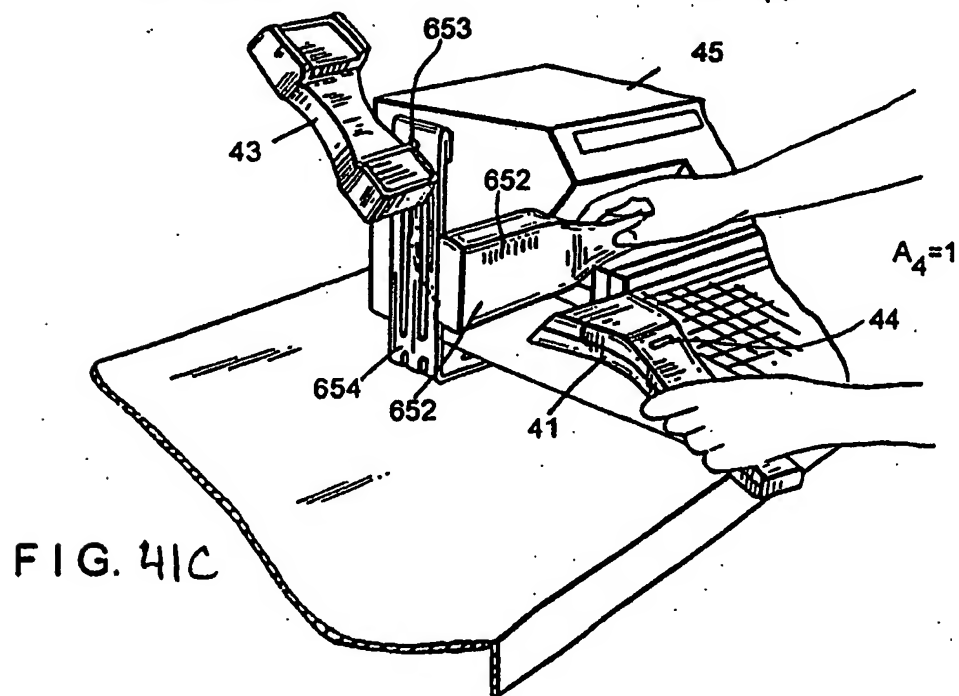


FIG. 41C

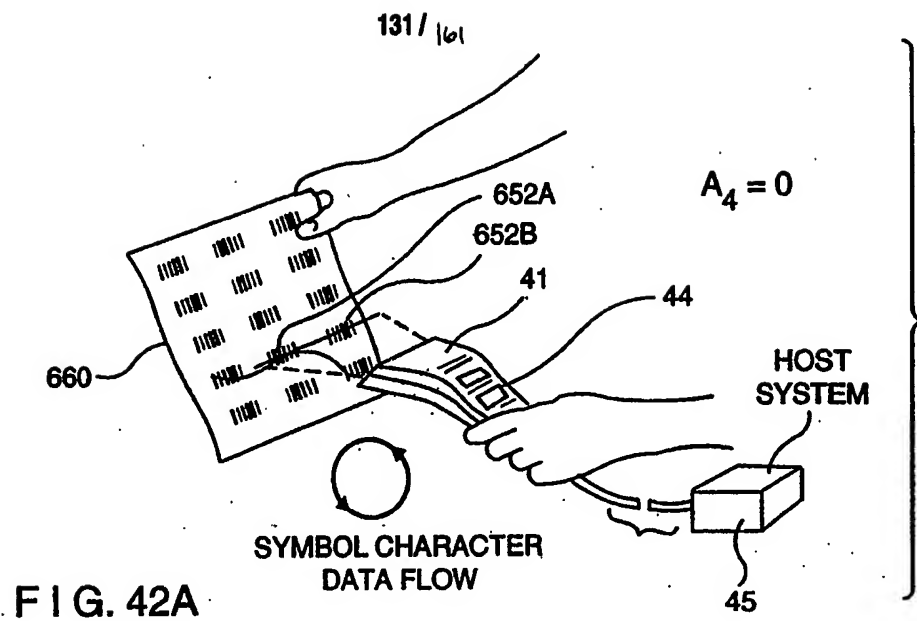


FIG. 42A

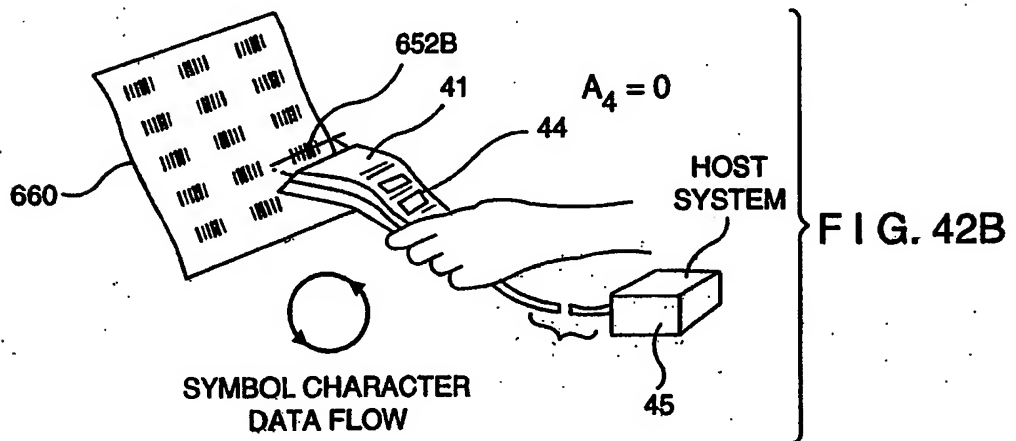


FIG. 42B

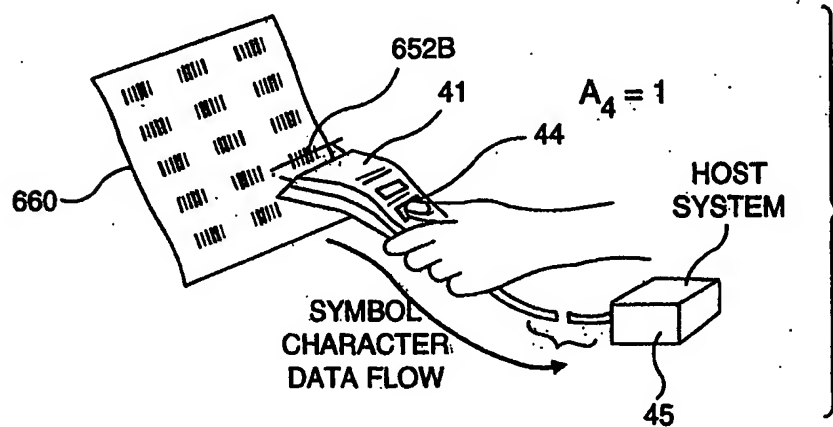
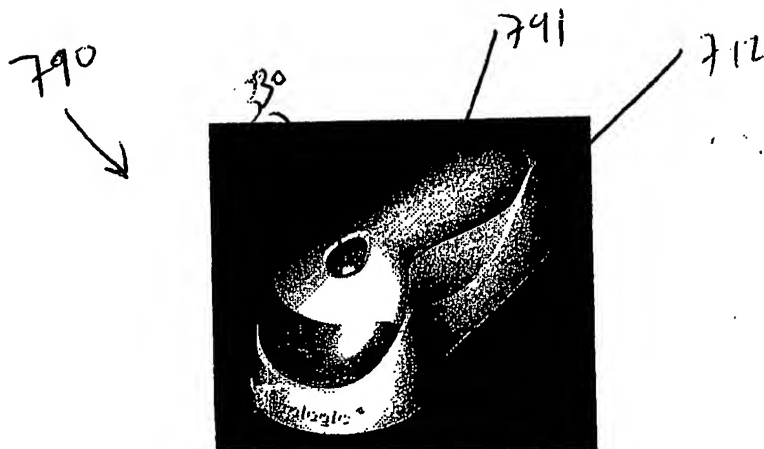


FIG. 42C

132/161



Automatic Barcode
Reading
System with
2-WAY
RF Communication
Link

FIG. 43A



712 FIG. 43B

FIG. 43C

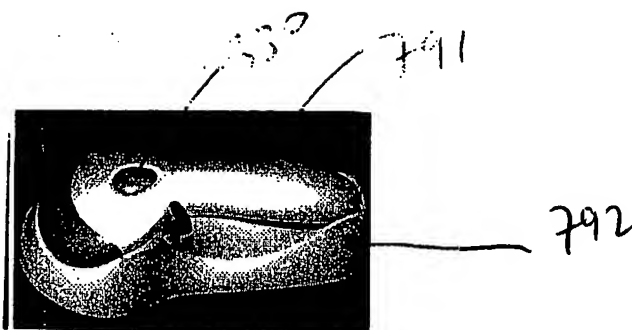


FIG. 43D

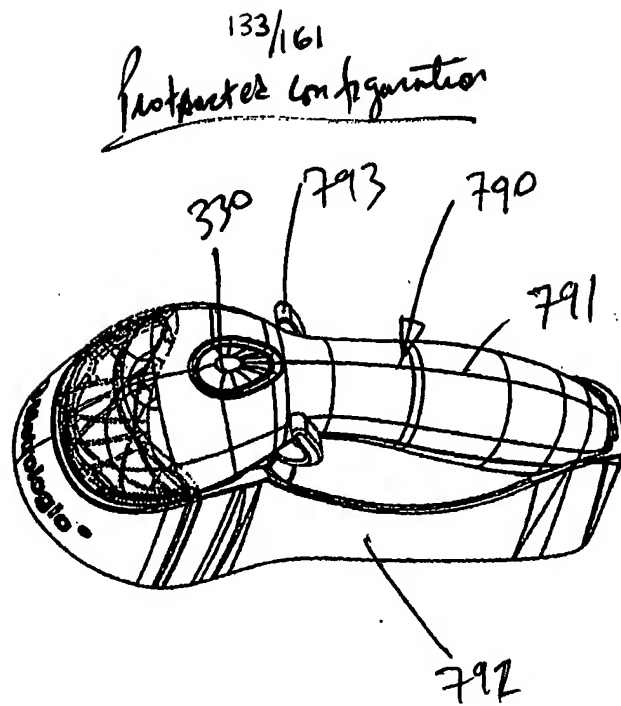


FIG. 43F

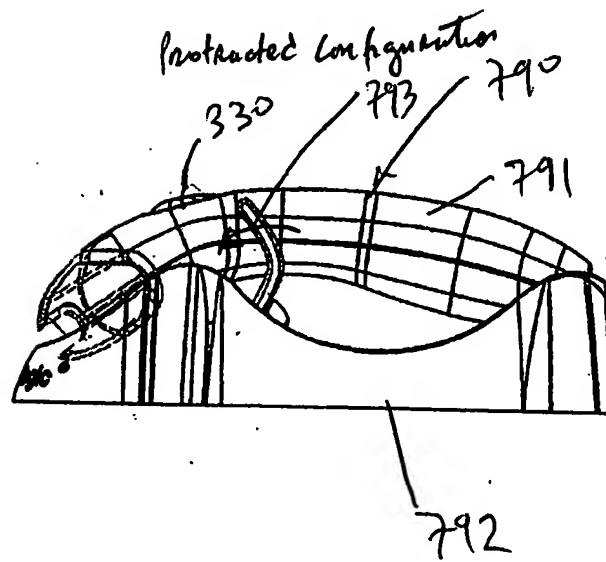


FIG. 43E

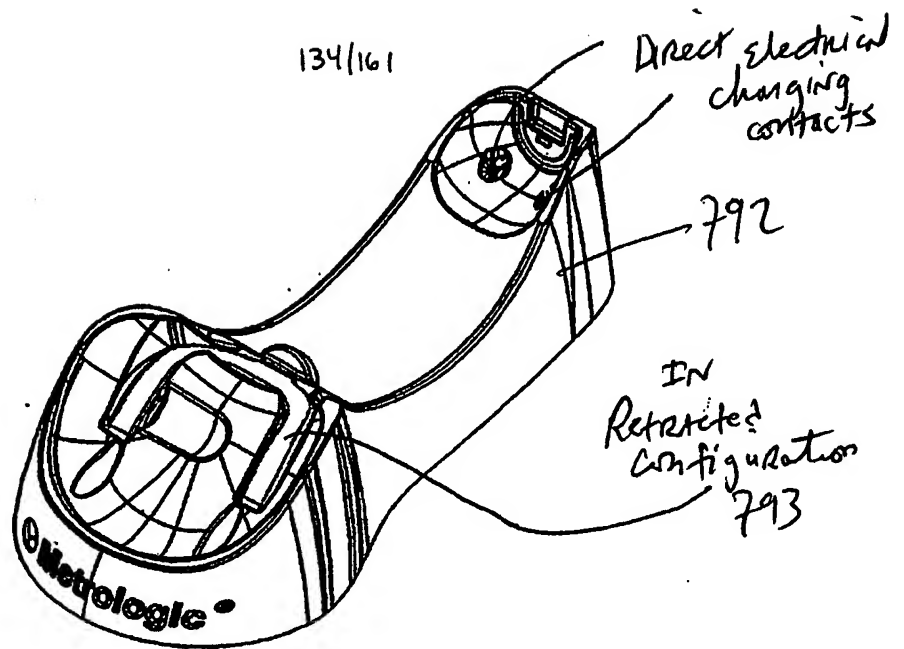


FIG. 43G

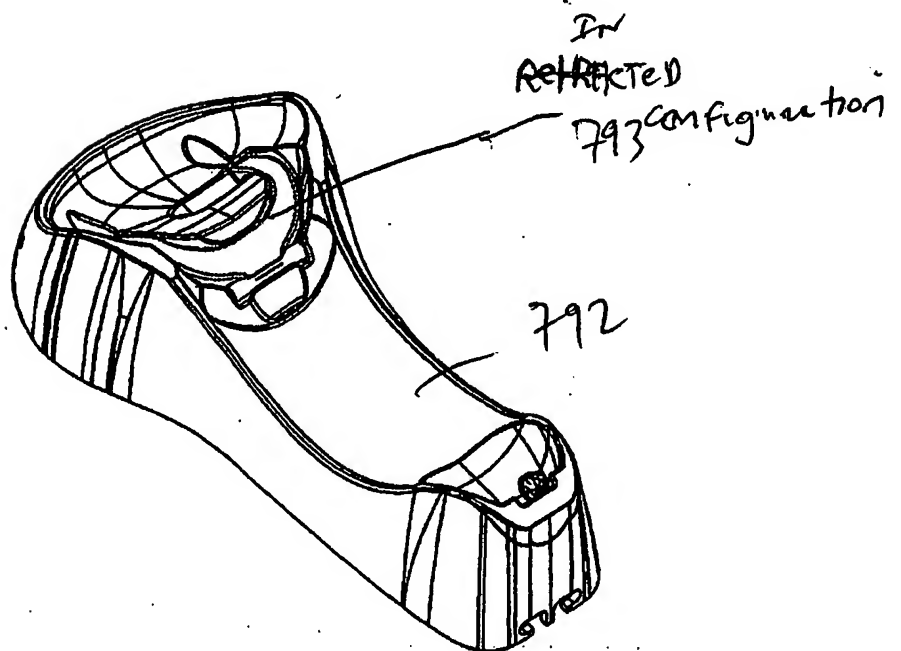


FIG. 43A

135/161

Retracted Configuration

793



FIG. 43 I 792

Projected Configuration

793

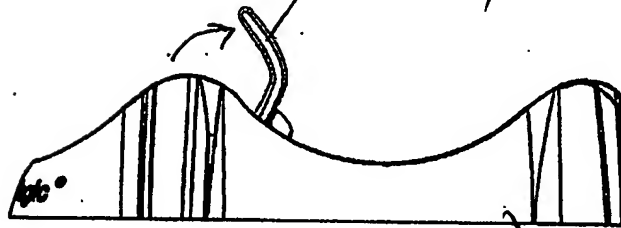


FIG. 43 J 792

136/161

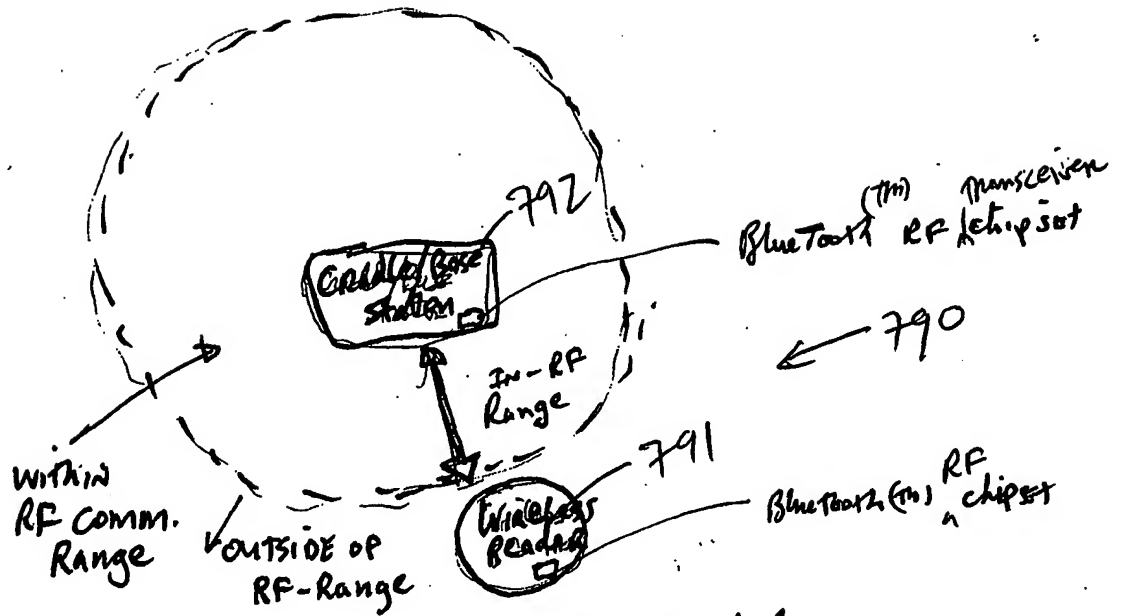


FIG. 44A1

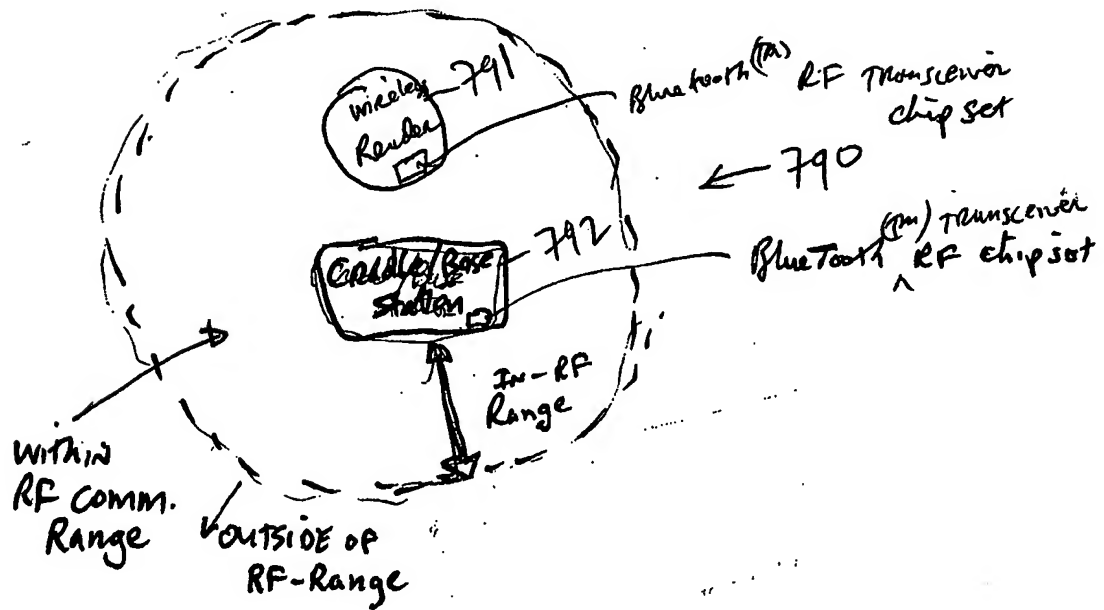


FIG. 44A2

137/161

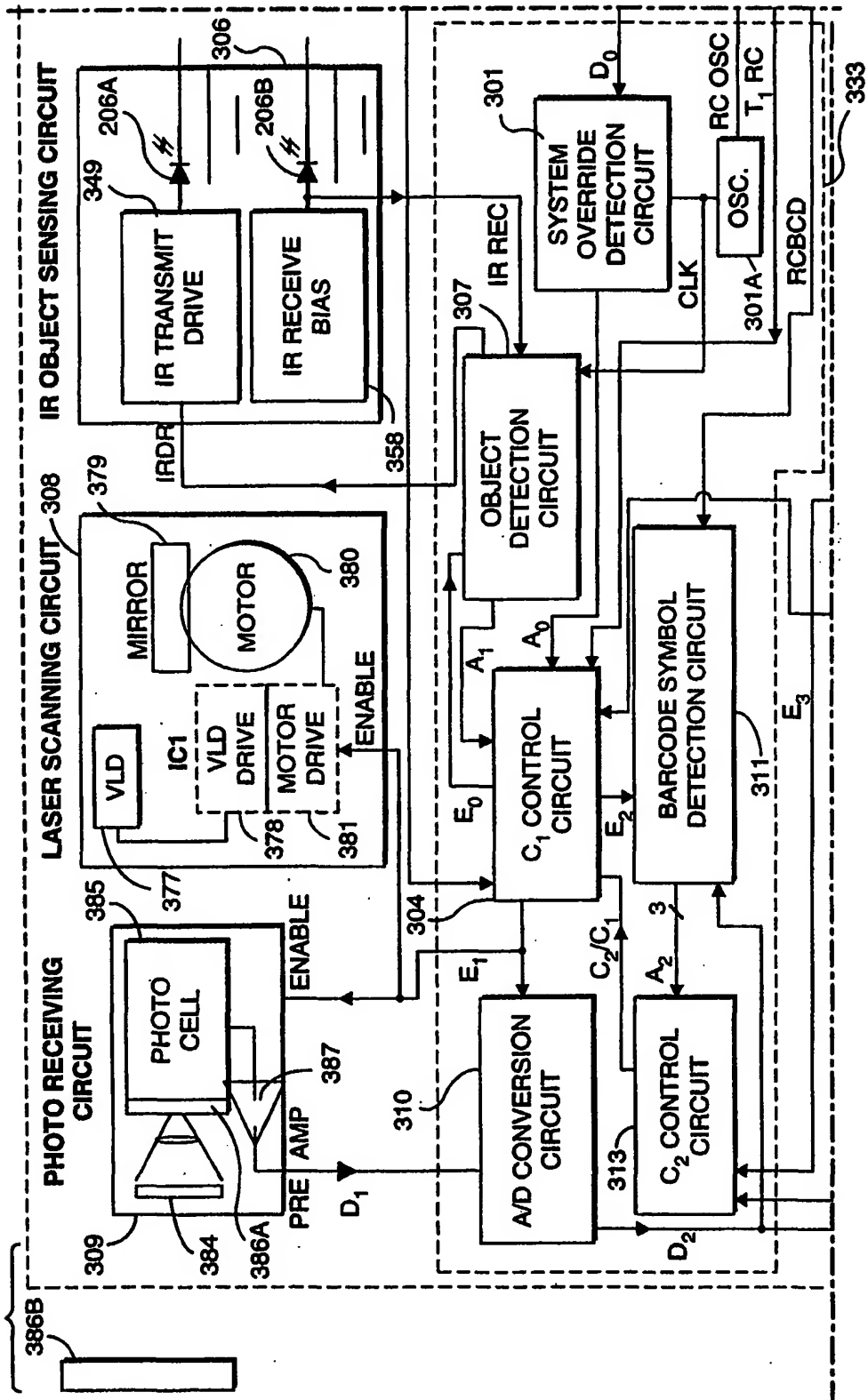
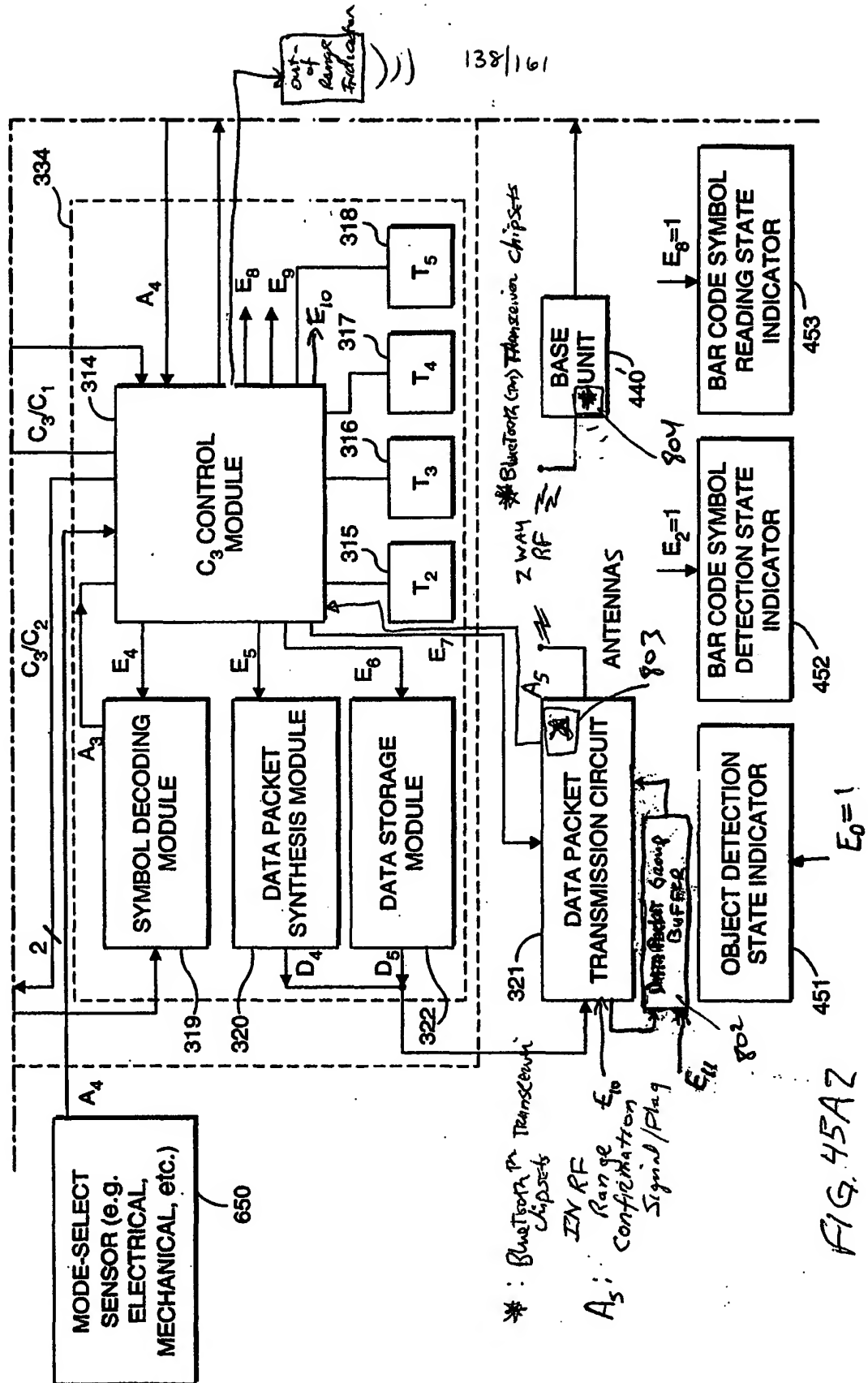
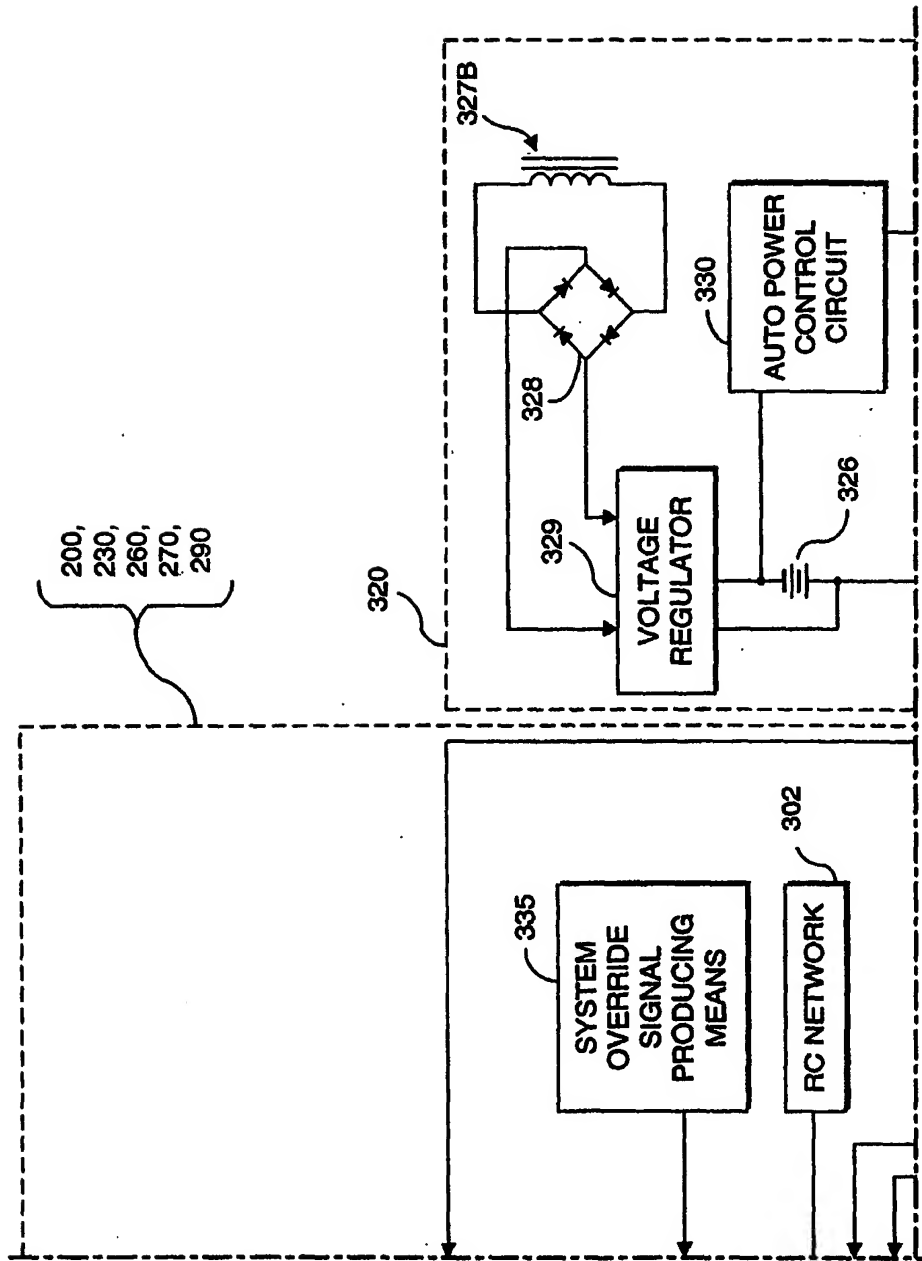


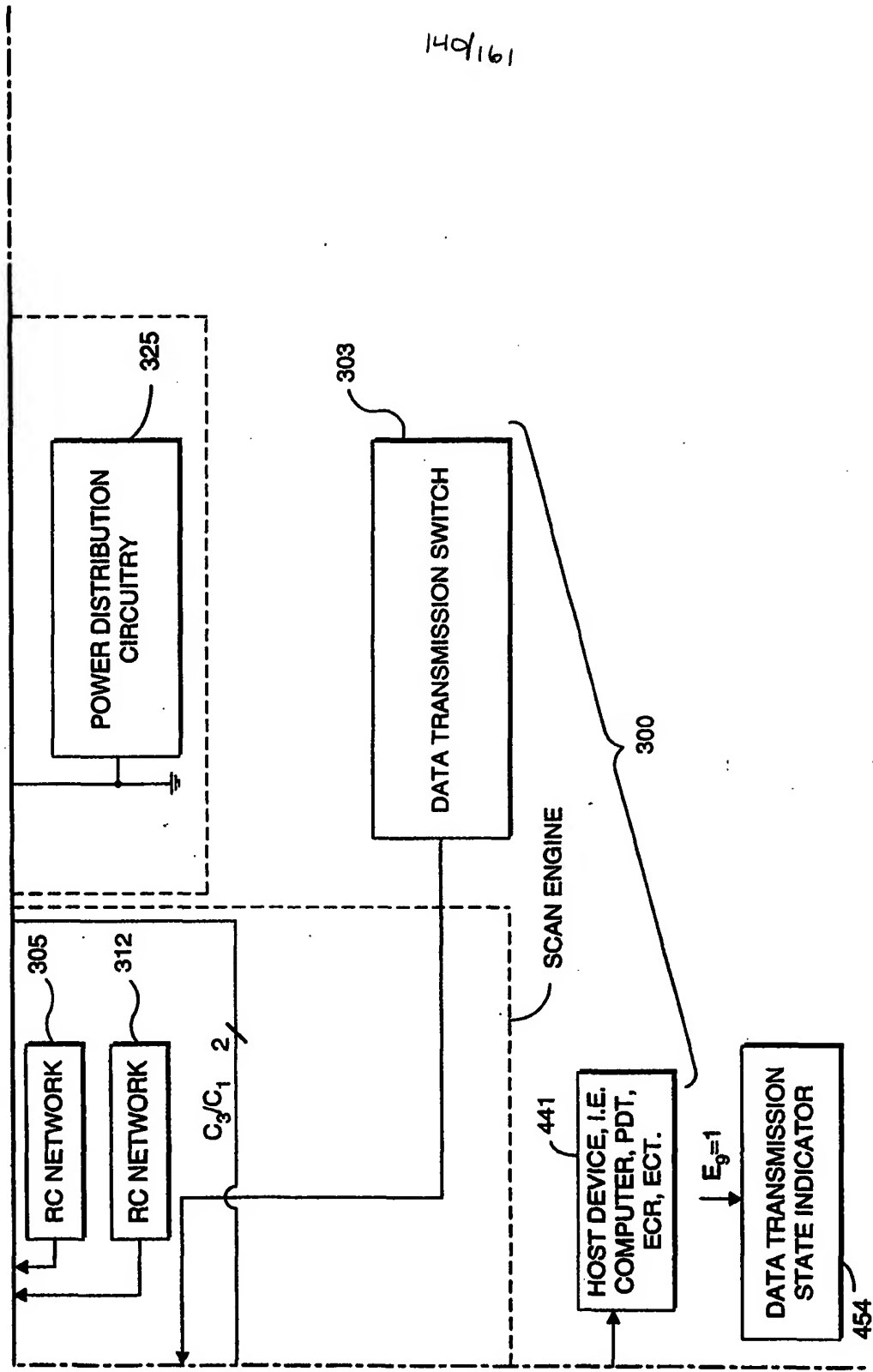
FIG 45A1

790





149/161



141/161

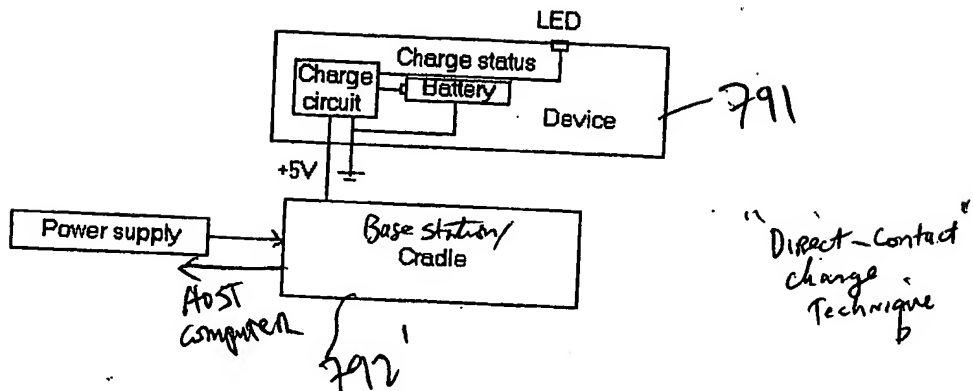


FIG. 45B

142/161

DATA Packet
Transmission VIA
2-WAY RF with Automatic
RP-Range Dependent
Control

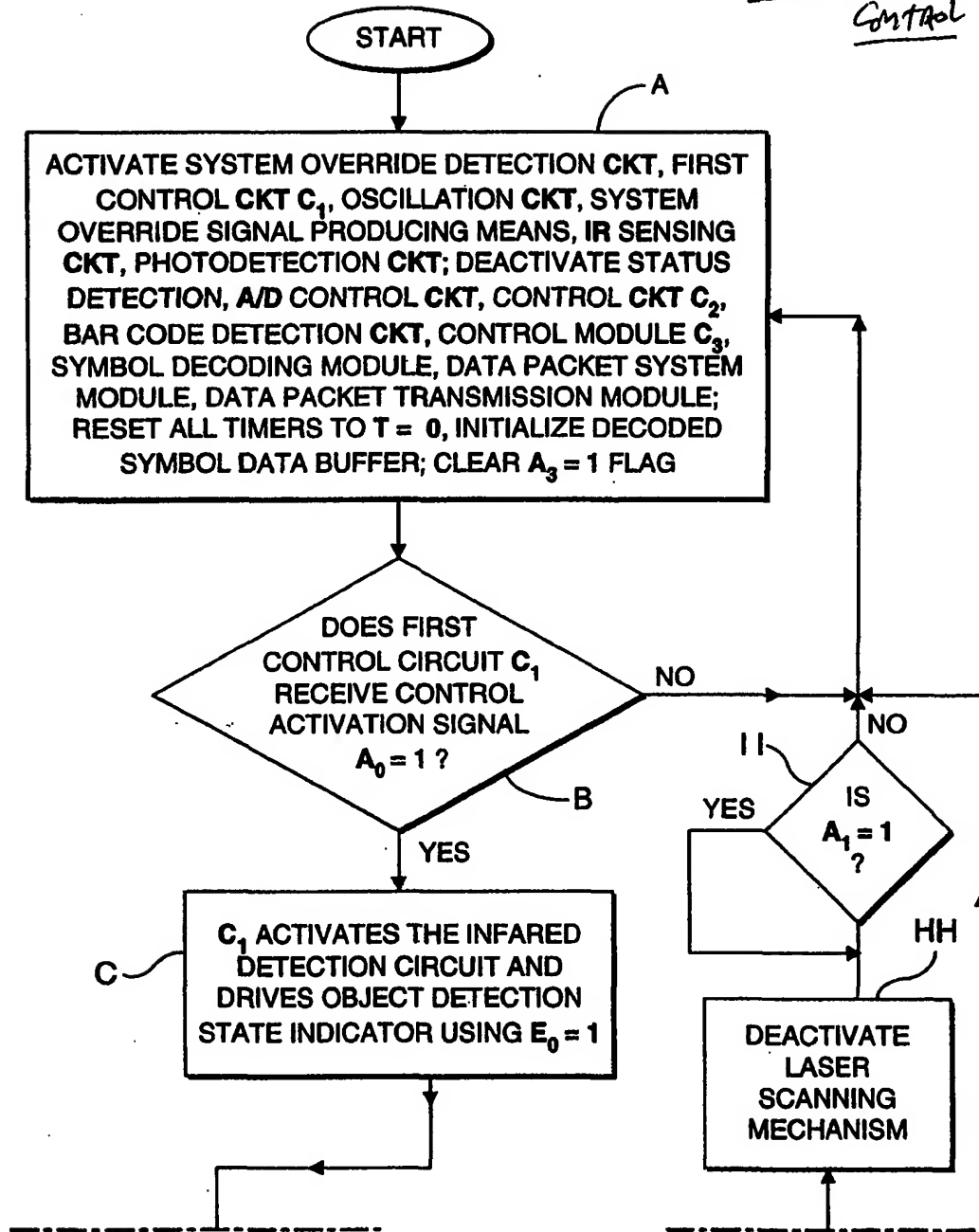


FIG. 46A1

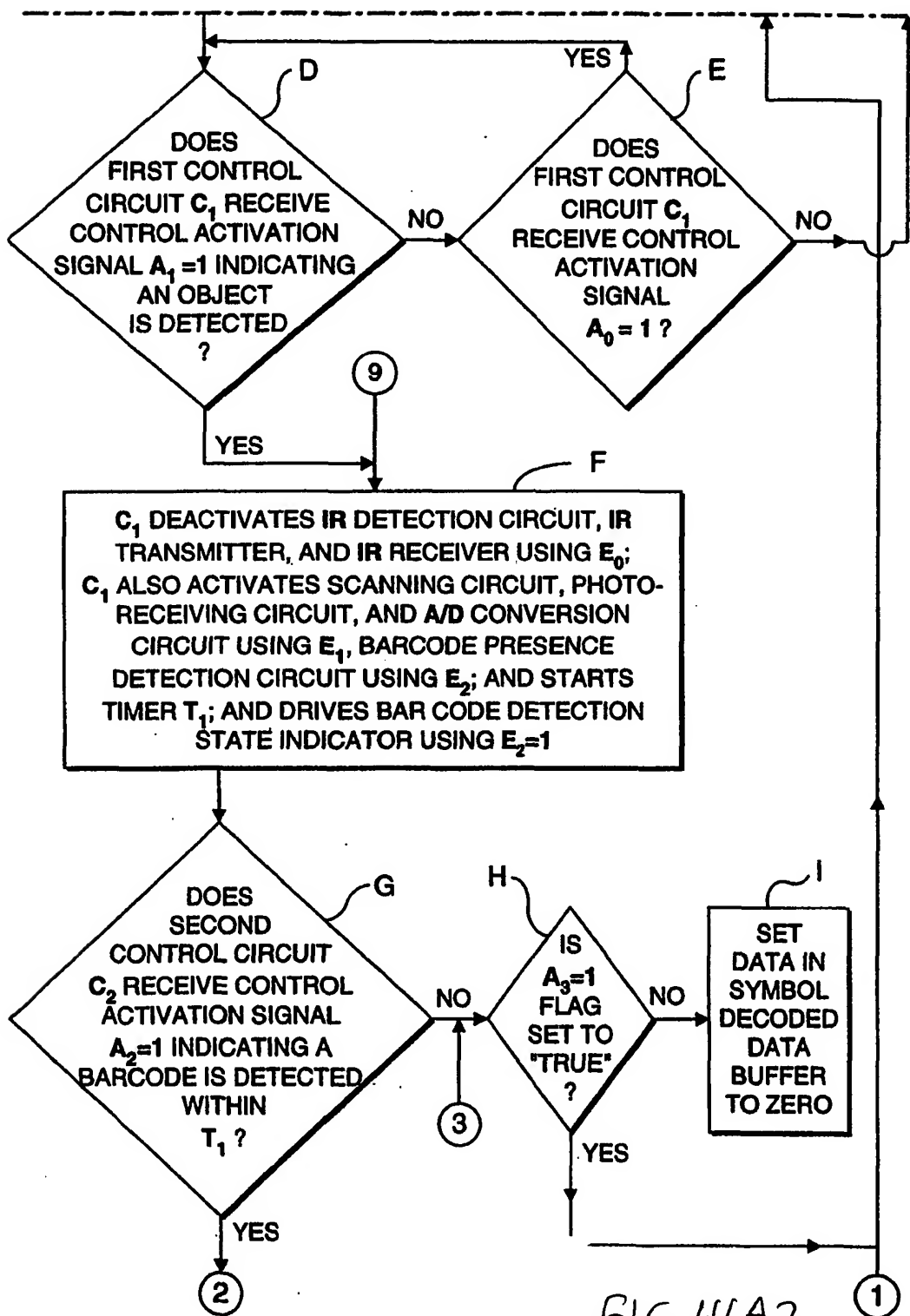
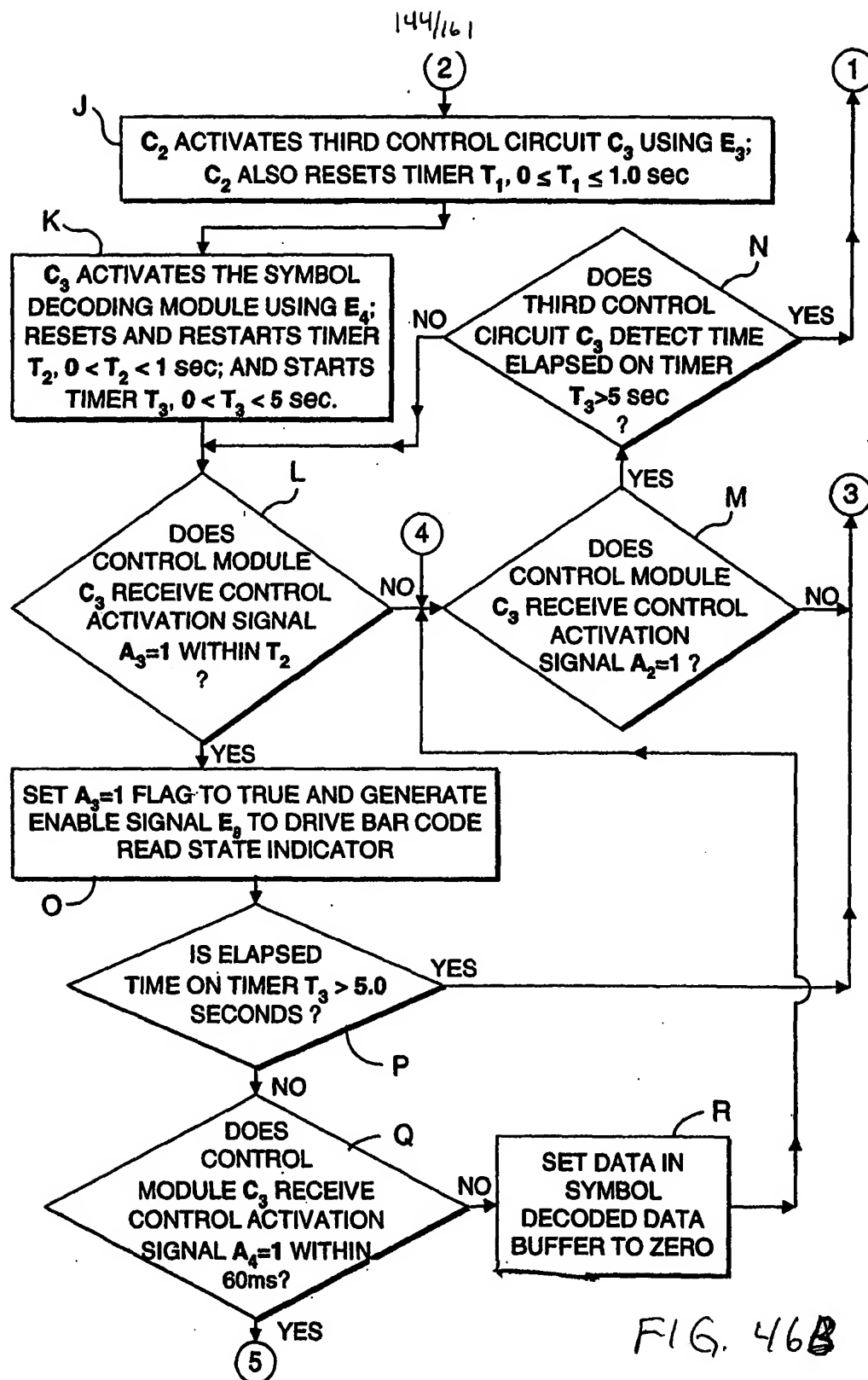


FIG 46A2



145/161

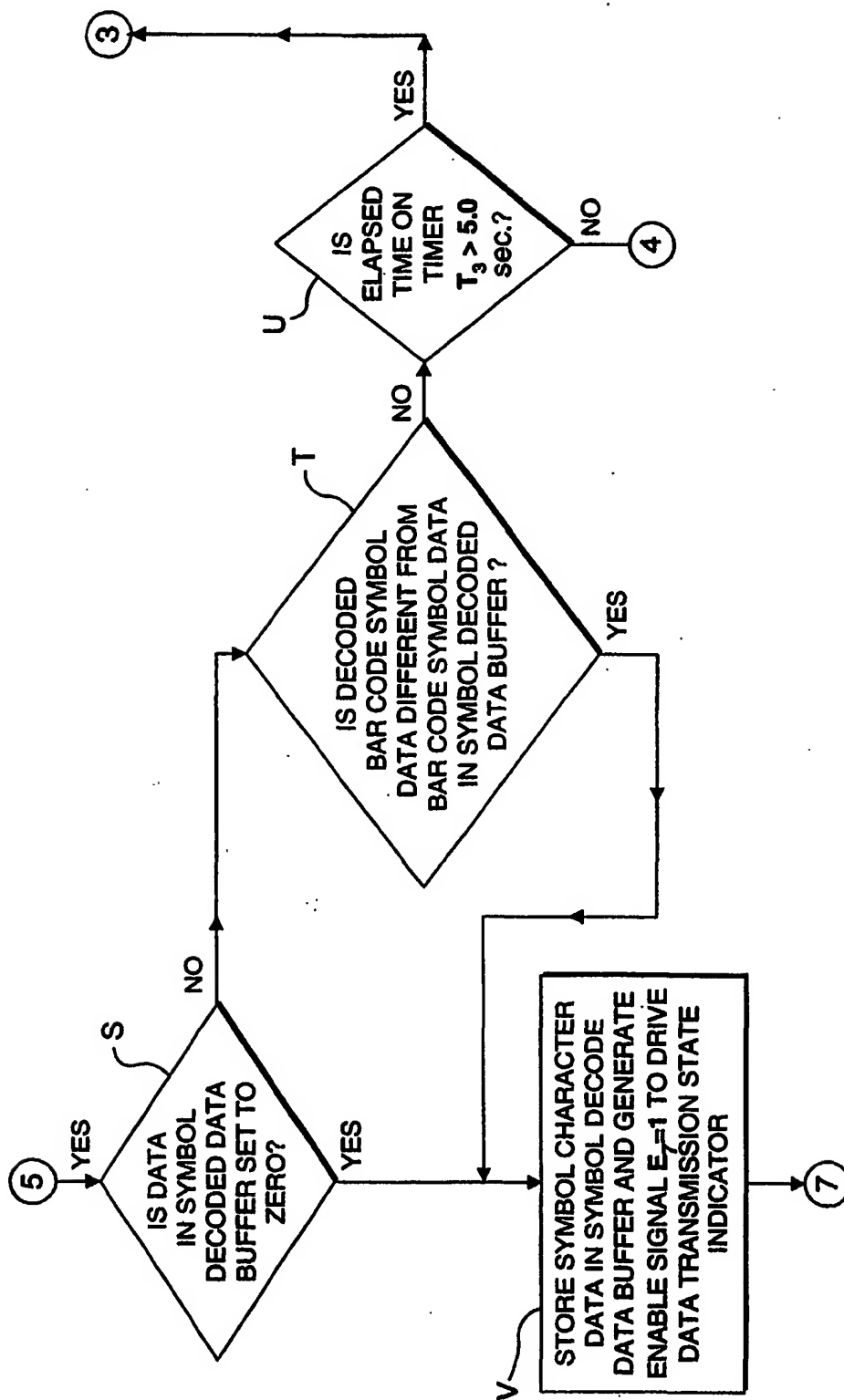


FIG 46C1

146/161

7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

IS IN-RANGE CONFIRMATION SIGNAL $A_5=1$?

NO

YES

ARE DATA PACKET GROUP(S) STORED IN DATA PACKET GROUP BUFFER?

NO

Z

YES

C_3 CONTROL MODULE GENERATES ENABLE SIGNAL $E_{11}=1$ RELOADING BUFFERED DATA PACKET GROUP(S) INTO DATA PACKET TRANSMISSION CIRCUIT

AA

CONTROL MODULE C_3 GENERATES ENABLE SIGNAL $E_{10}=1$ LOADING CURRENTLY SYNTHESIZED DATA PACKET GROUP INTO DATA PACKET TRANSMISSION CIRCUIT

BB

11

FIG. 46 C2

147/161

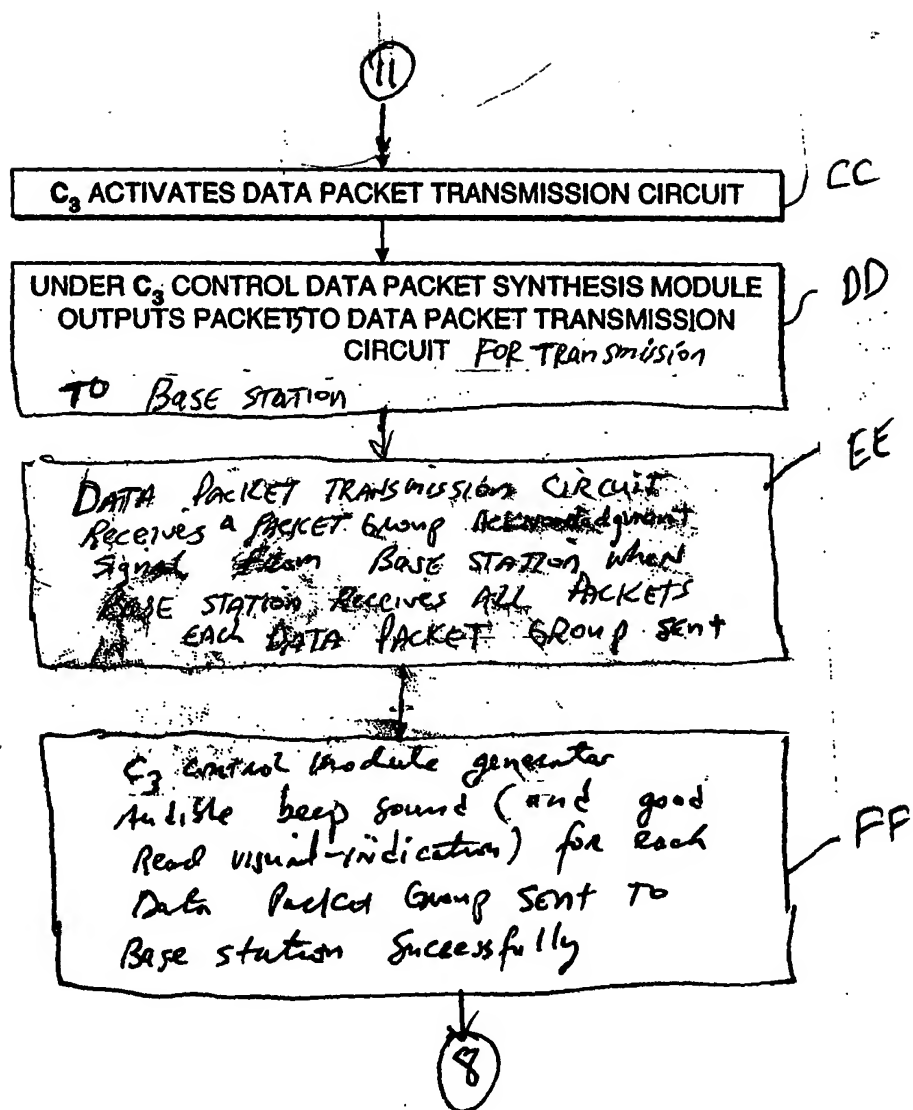


FIG. 46C3

1481161

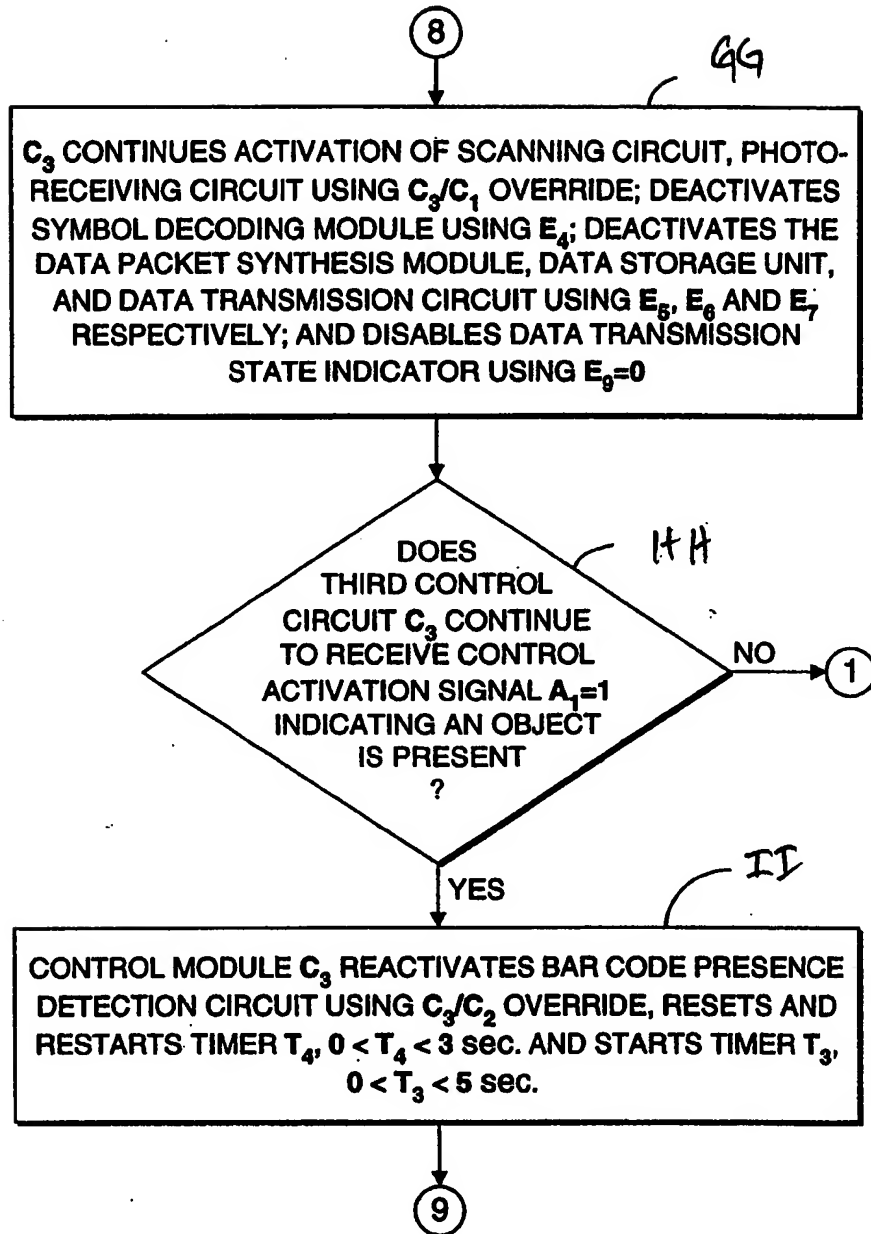


FIG 46 C4

149/161

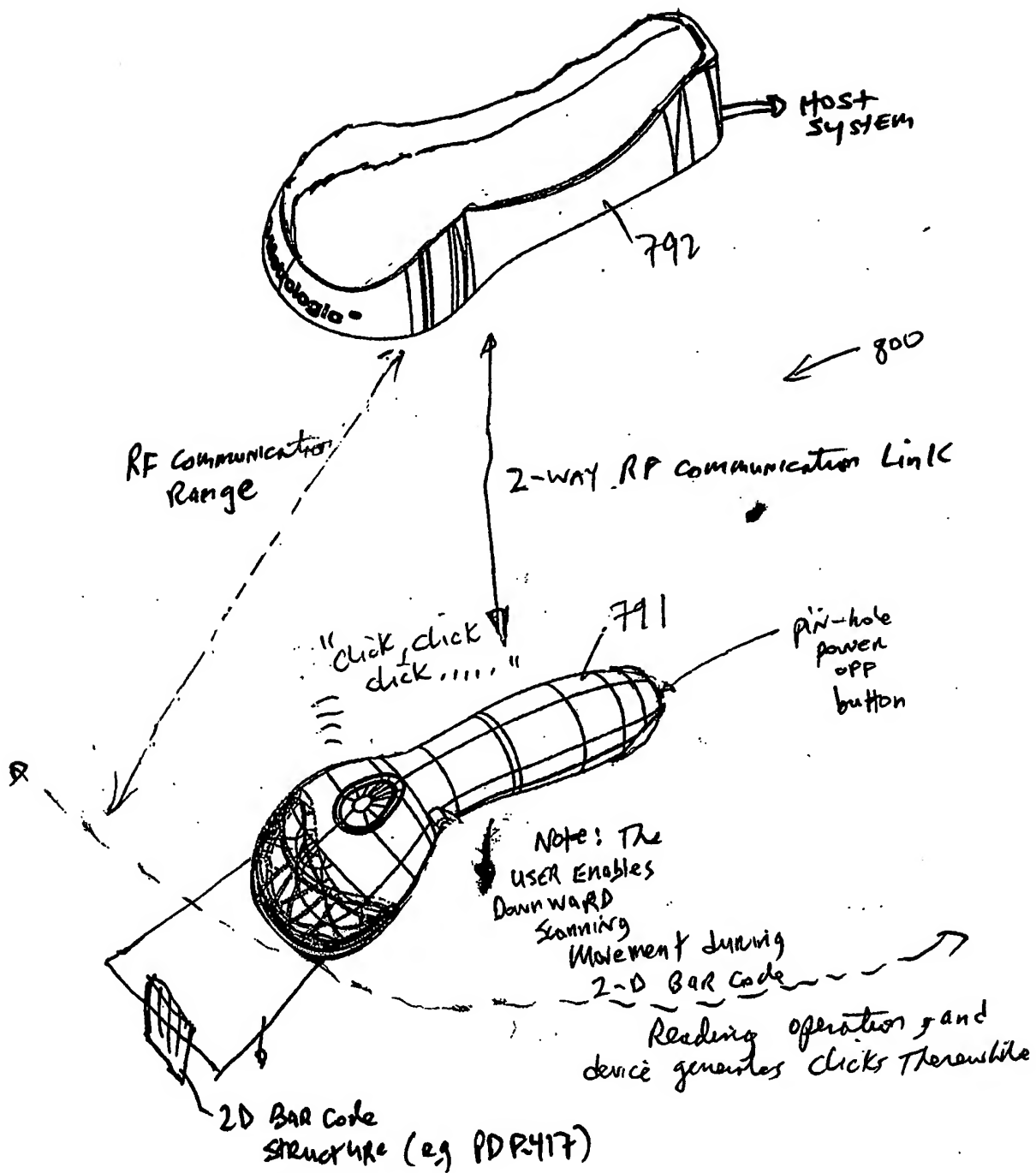
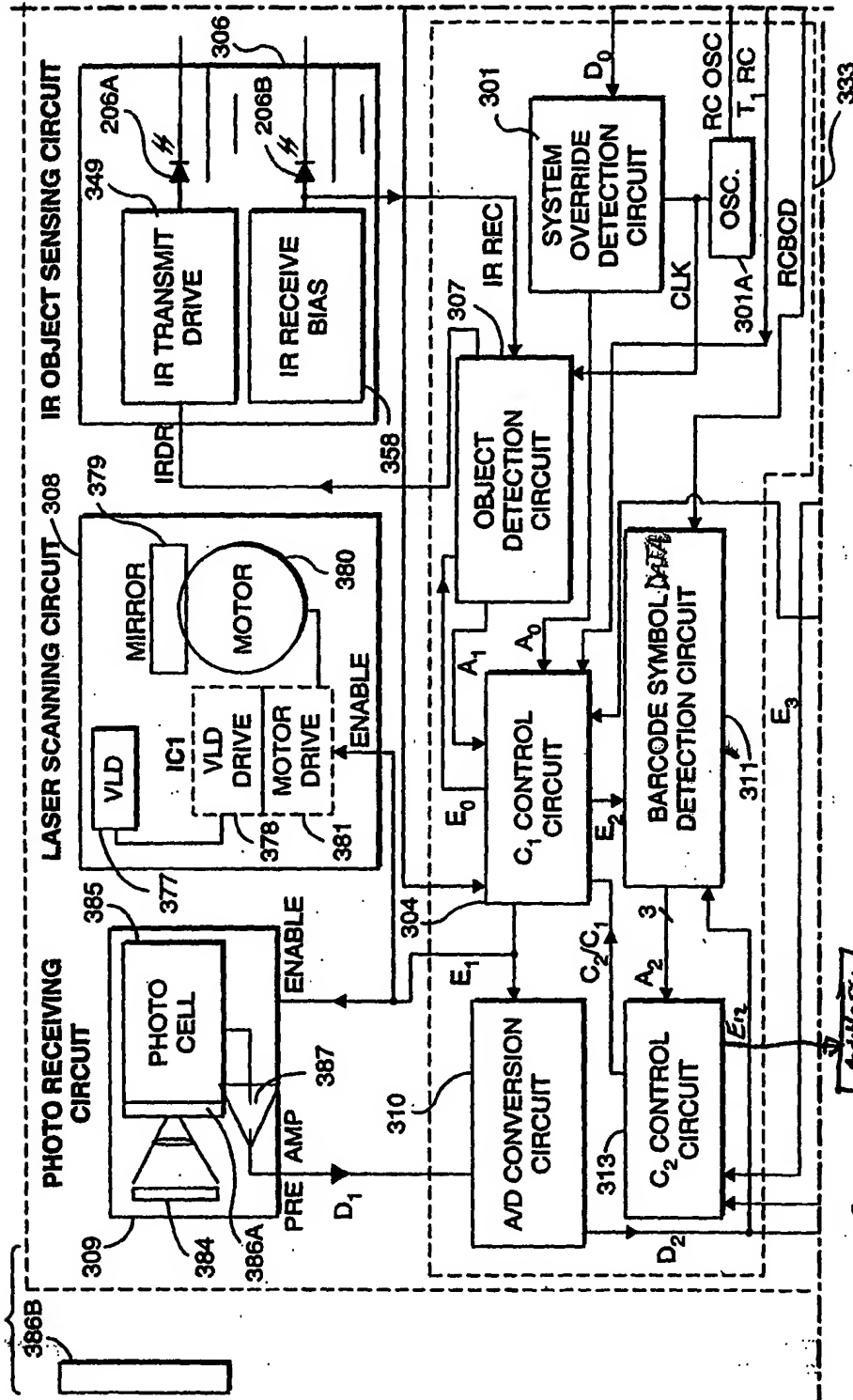


FIG. 47

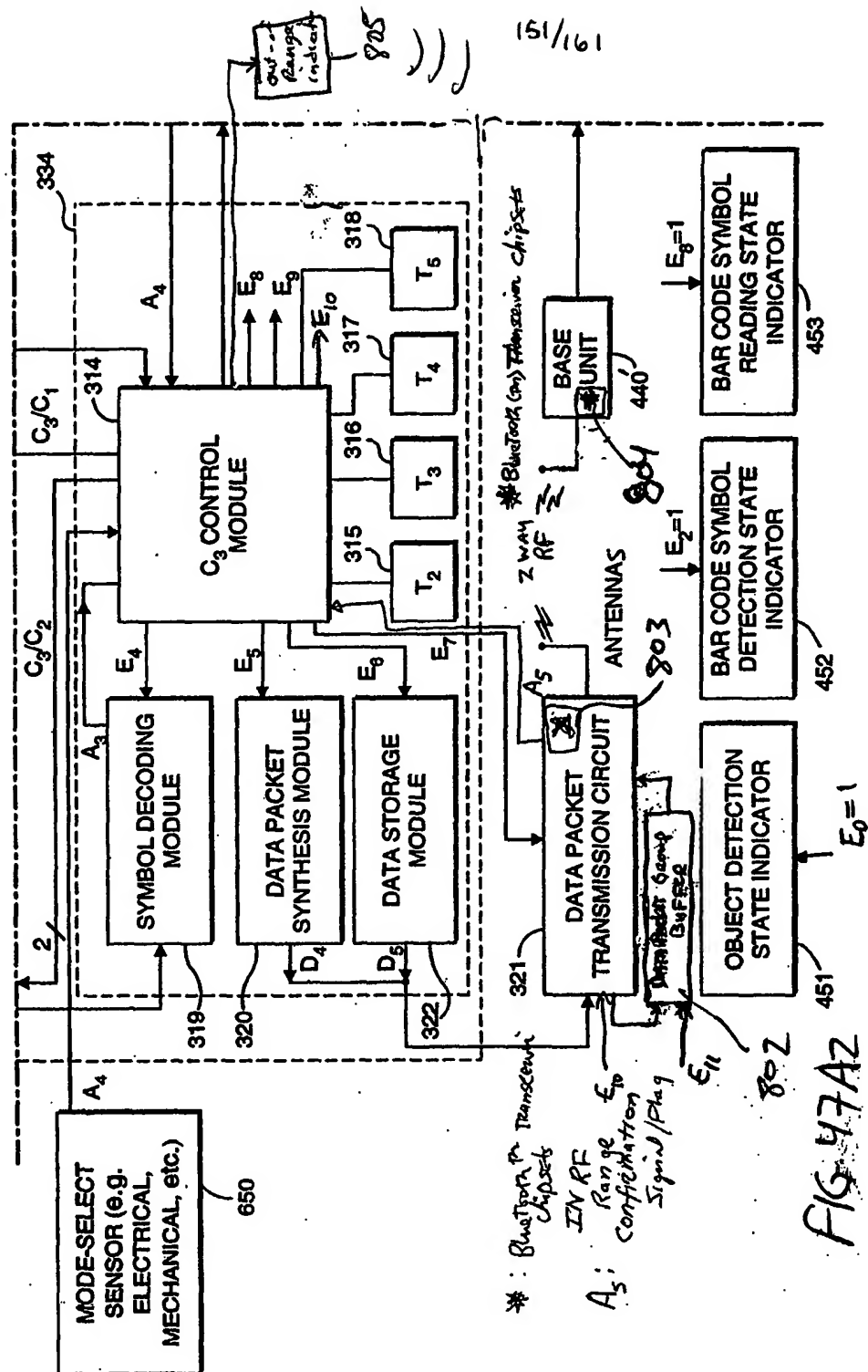
150/161



806 FIG. 47A1
(pico-electric transducer)

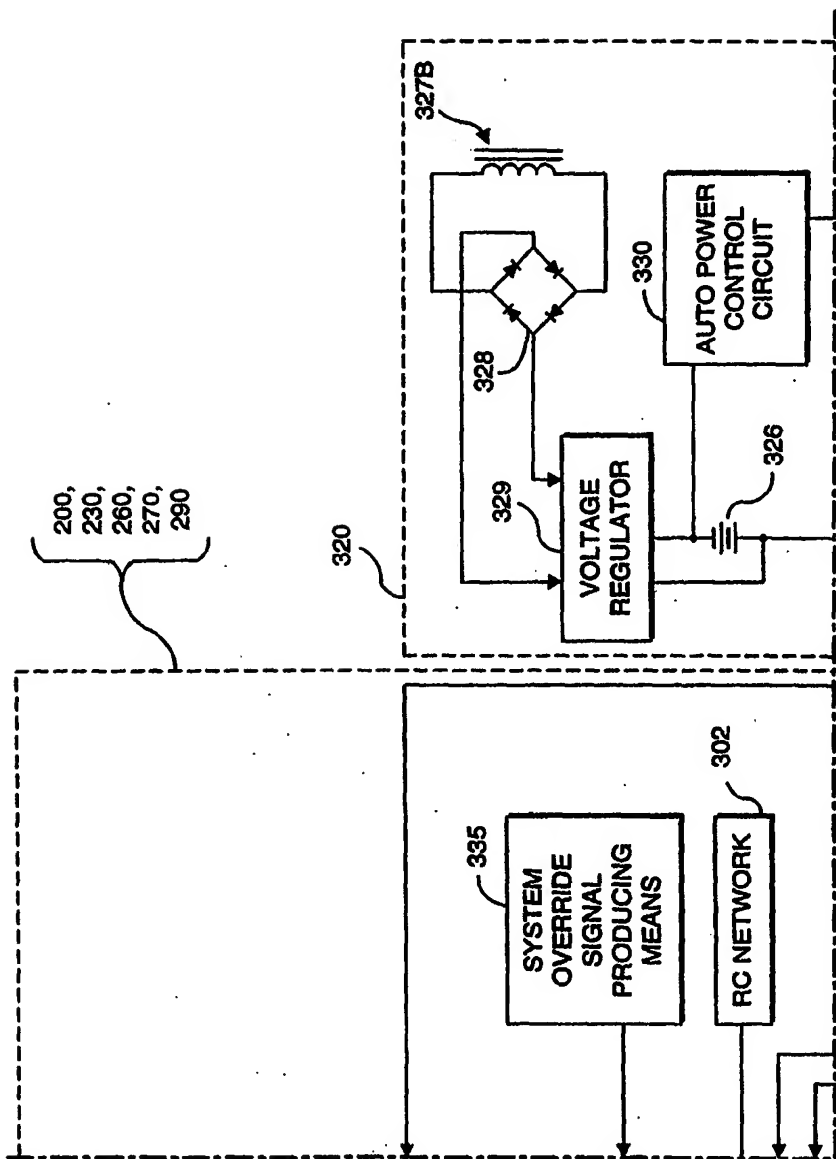
Active Scan
Data Capture
Software
Technology

800



152/161

FIG 47A3



153/161

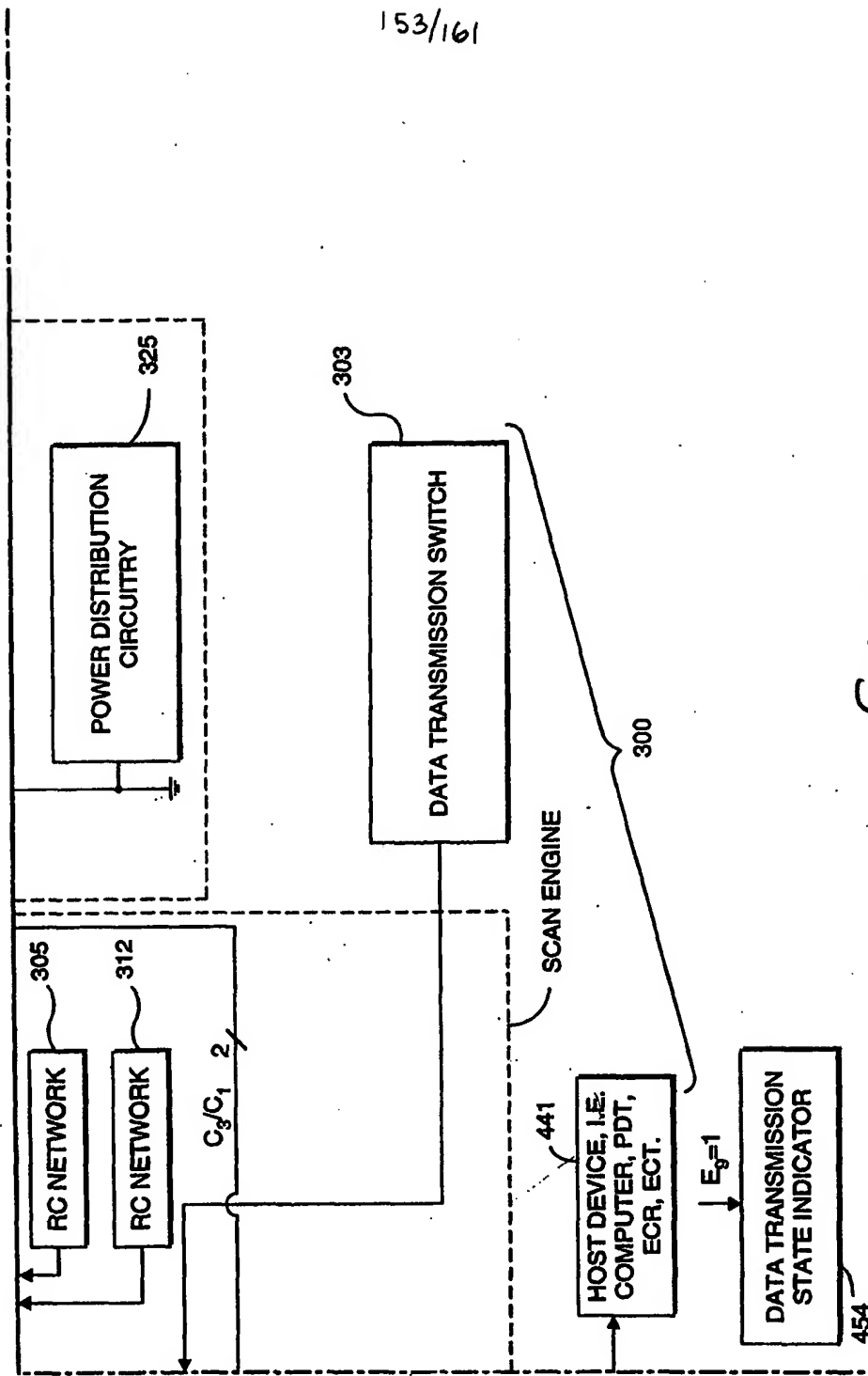


FIG. 47A4

154/161

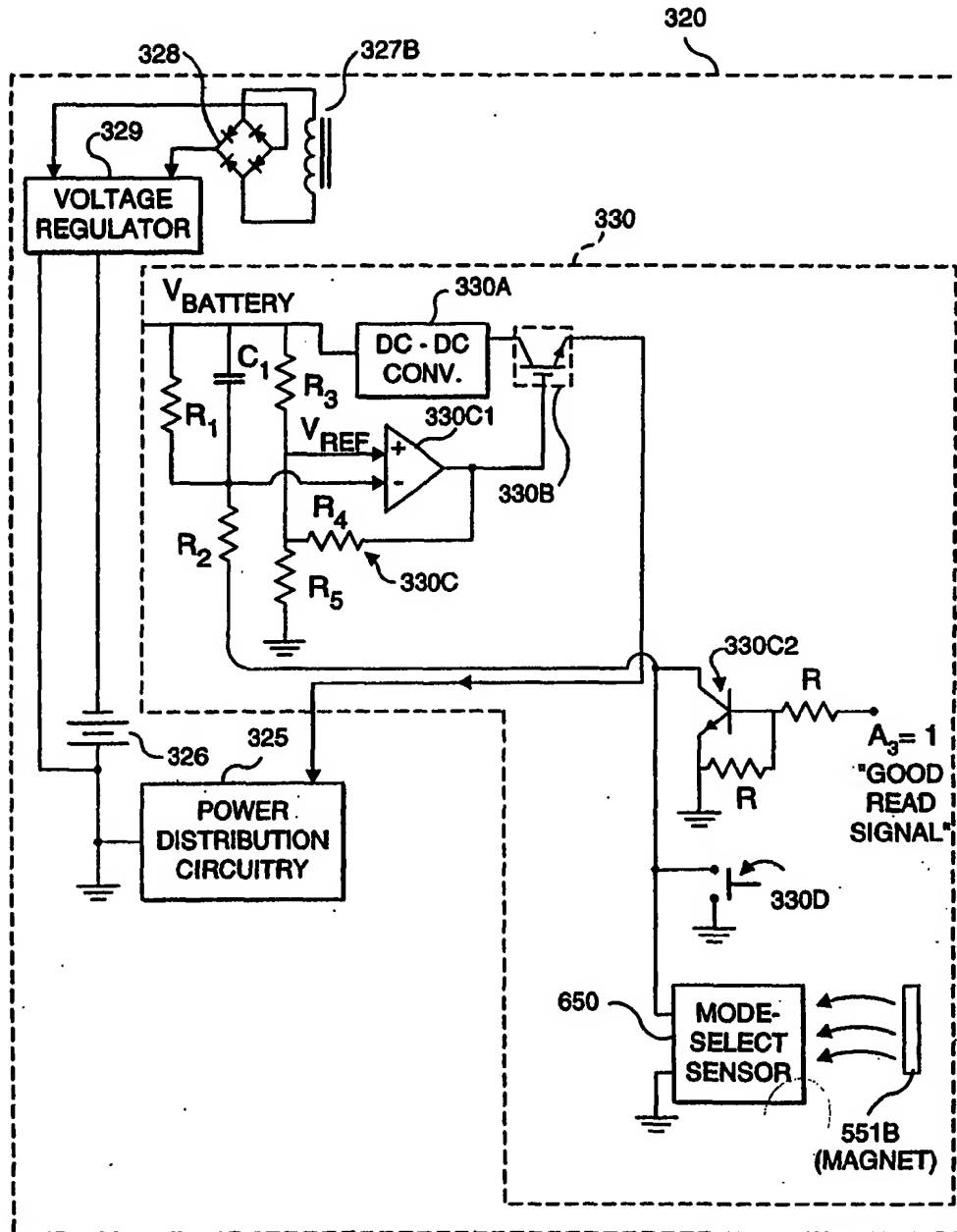


FIG. 47B

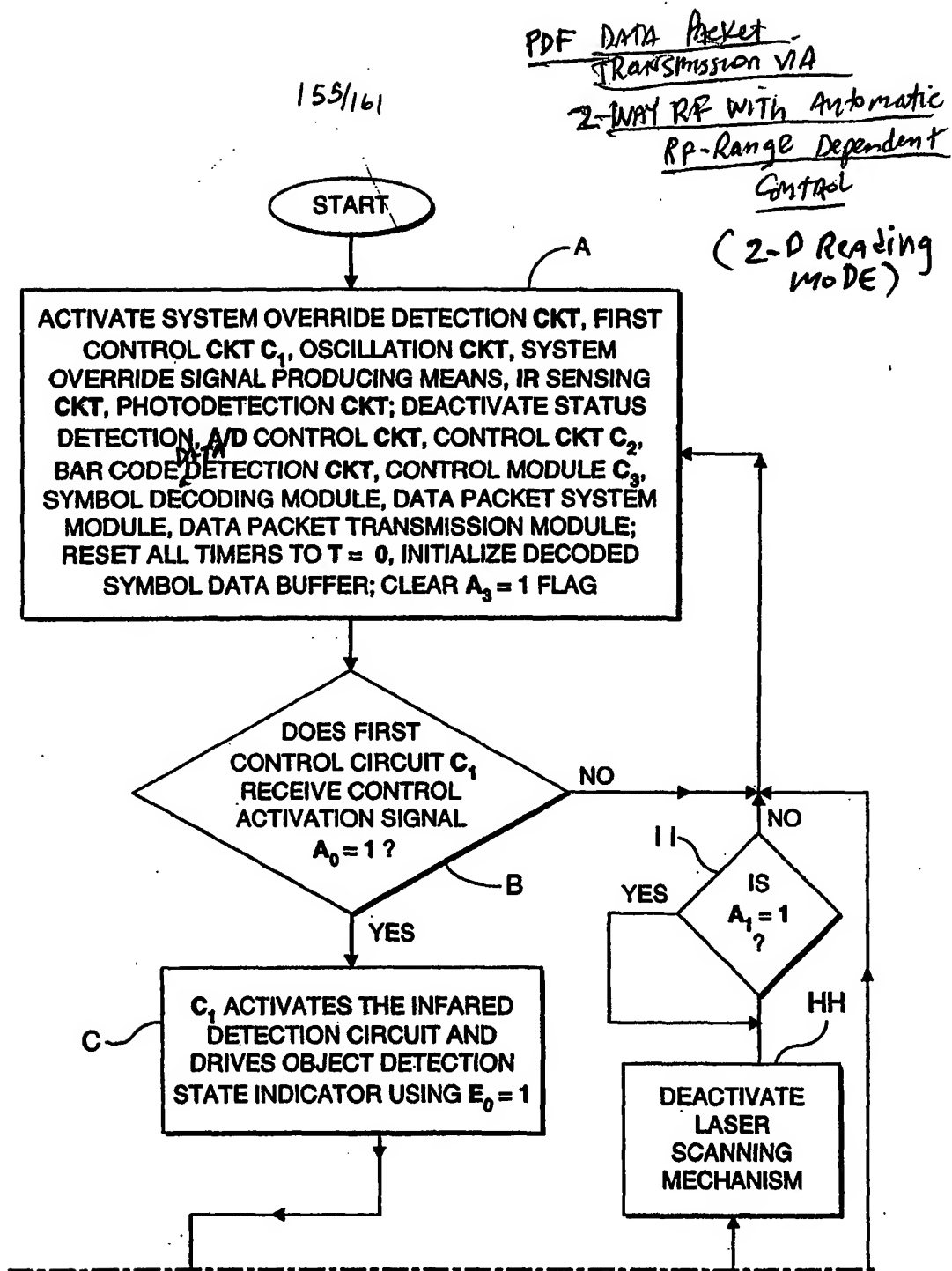


FIG. 48A1

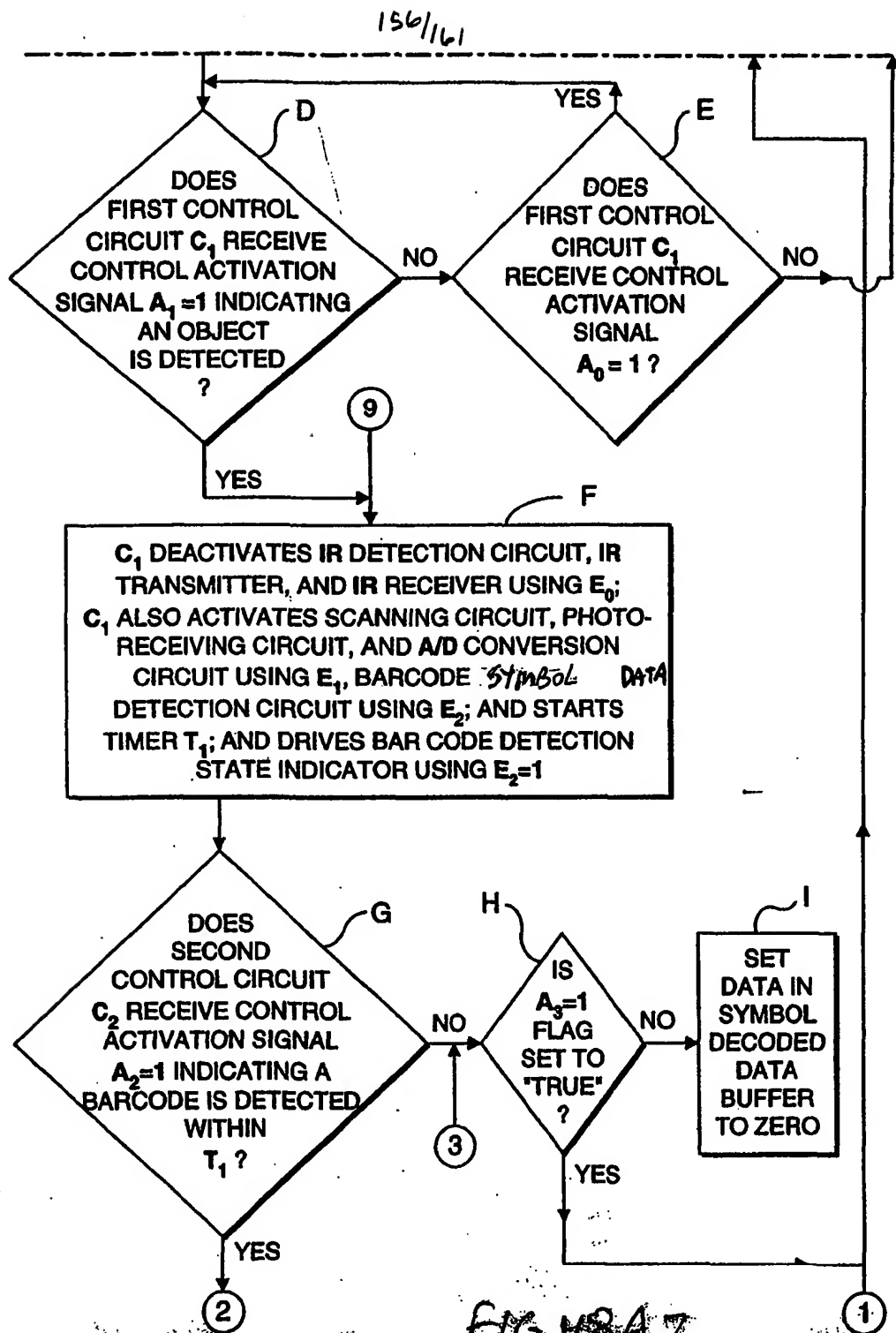
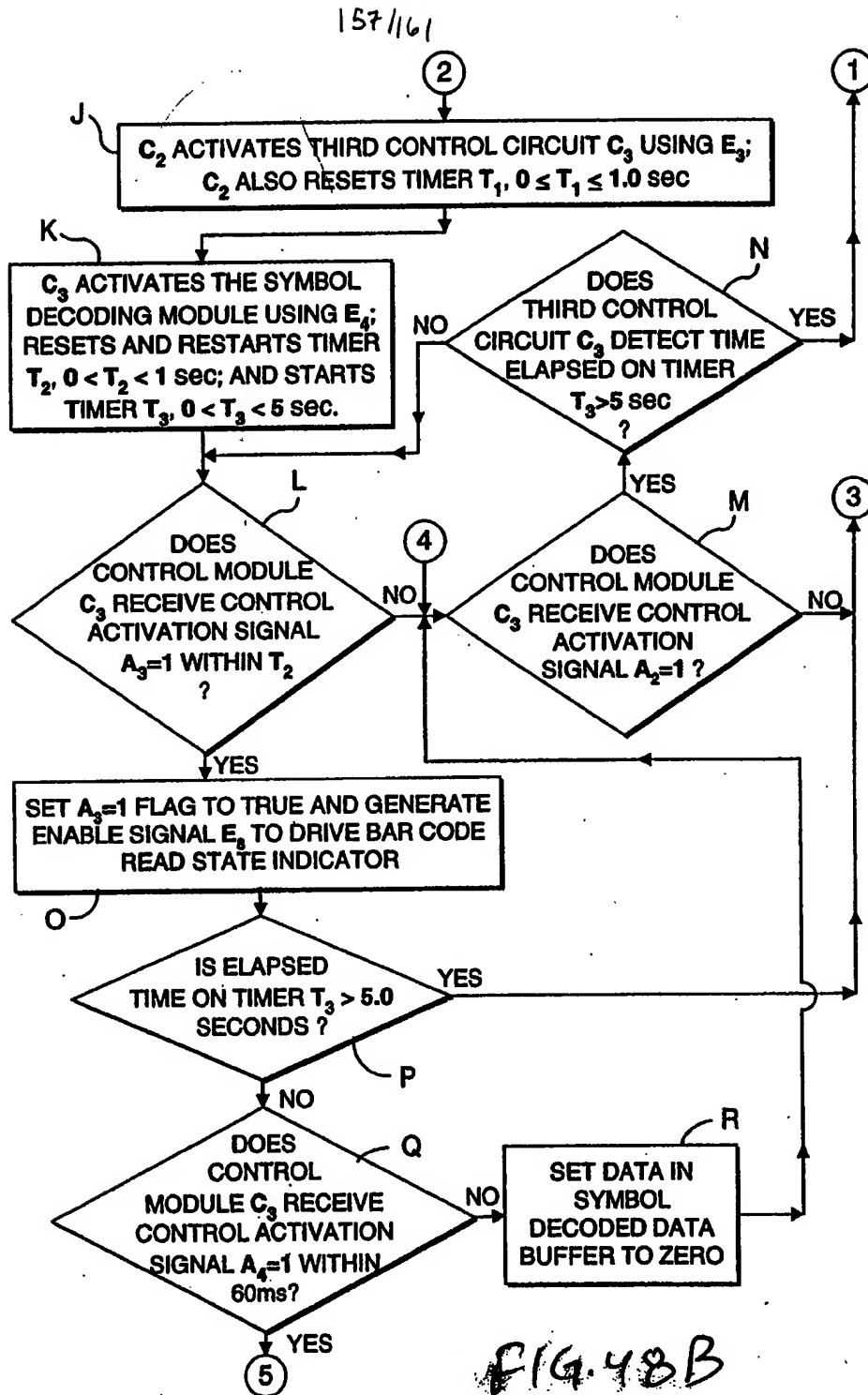


FIG. 4B A Z



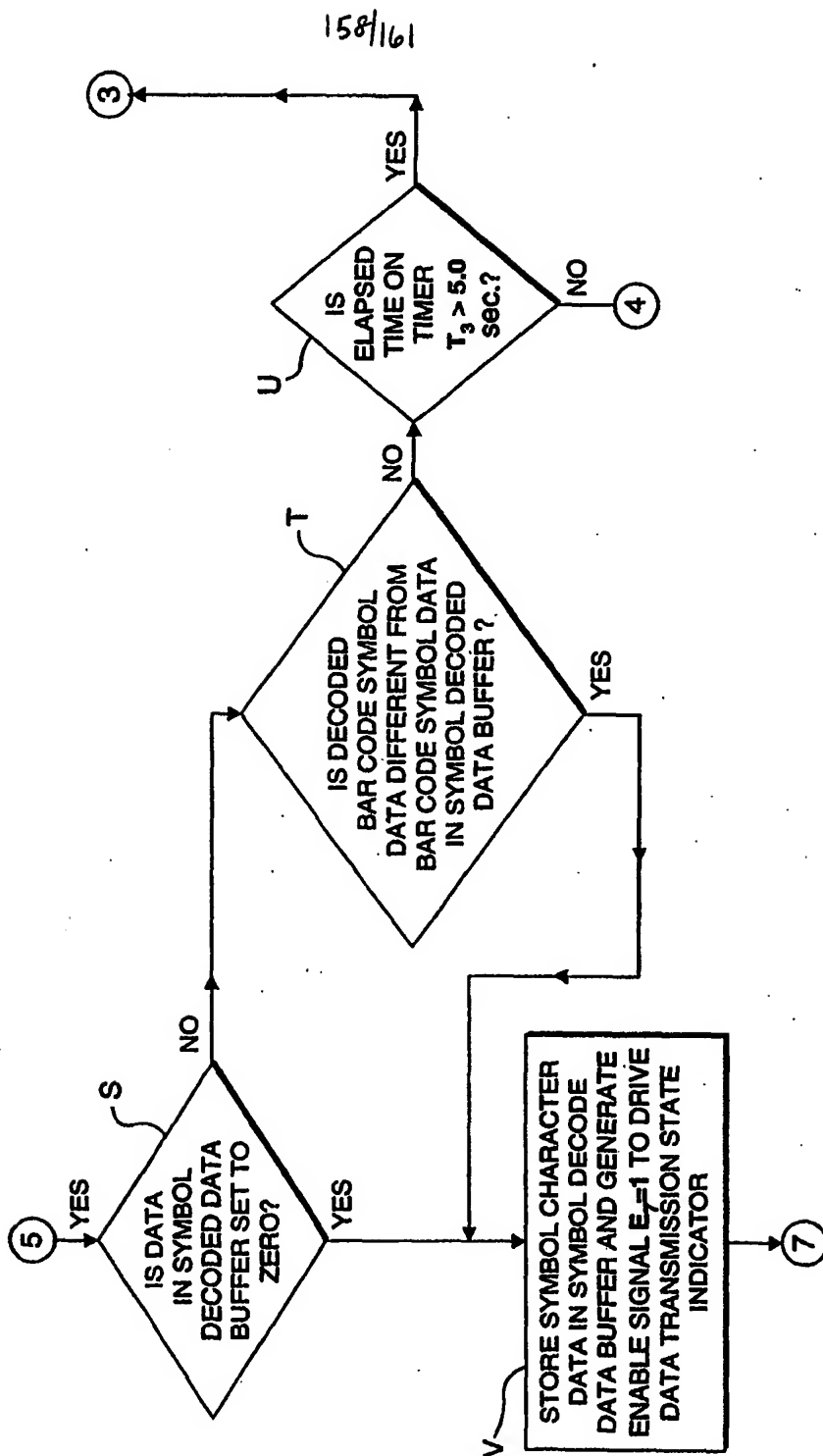


FIG. 48c1

159/161

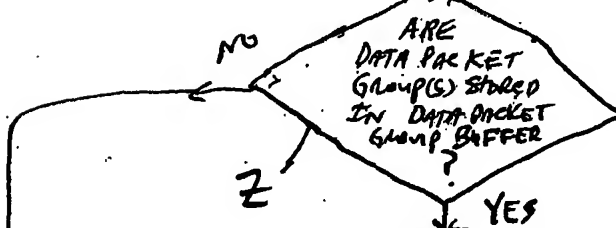
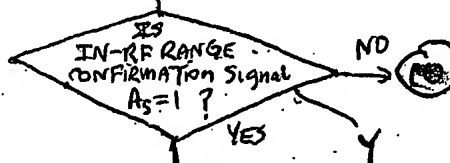
7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

W

UNDER C_3 CONTROL, DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

X



C_3 Control Module Generates Enable Signal $E_{11}=1$ Reloading Buffered Data Packet Group(s) into Data Packet Transmission Circuit

AA

Control Module C_3 Generates Enable Signal $E_{10}=1$ loading currently Synthesized Data Packet Group into Data Packet Transmission Circuit

BB

11

FIG. 48C2

160/161

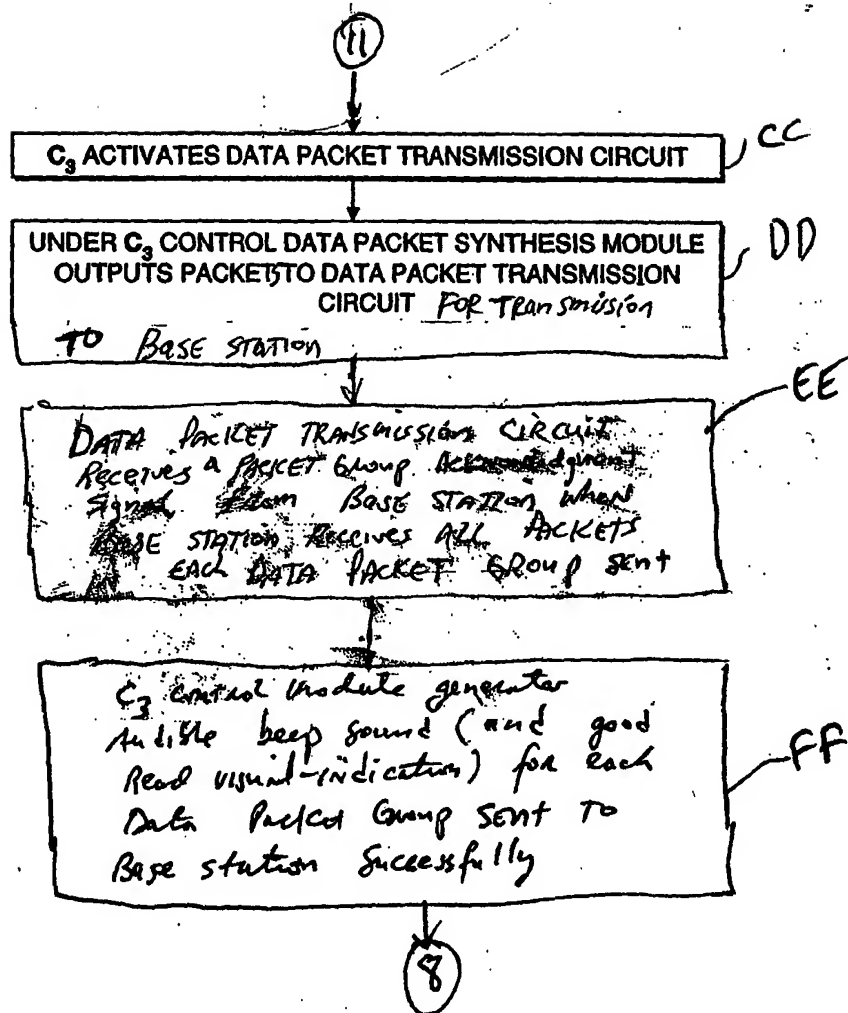


FIG. 48C3

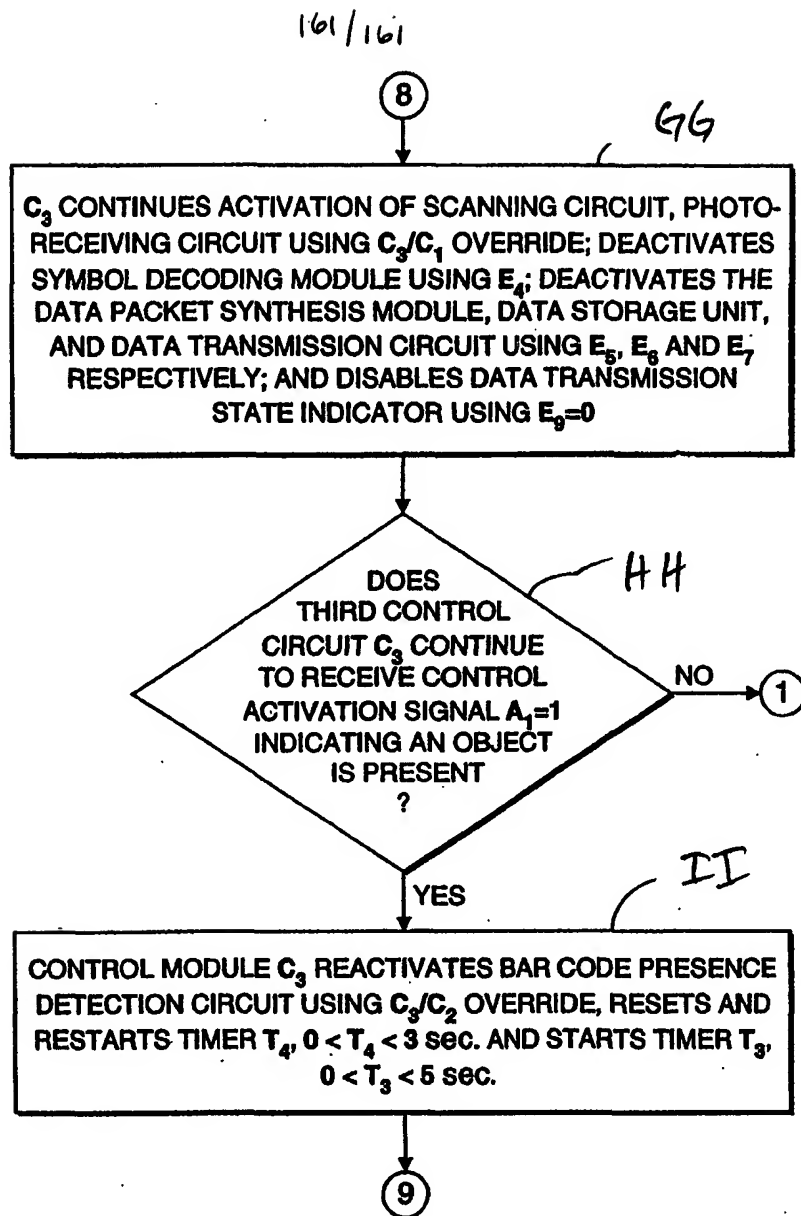


FIG. 48C4